AN EXPLORATION OF ENGLISH LANGUAGE TEACHER EDUCATORS' COGNITIONS AND PRACTICES IN RELATION TO THE PEDAGOGICAL PURPOSES AND EFFICACIES OF 21ST-CENTURY DIGITAL TECHNOLOGIES

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ABSTRACT

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(Zoe) Ksan Rubadeau

This multiple case study investigates English language (EL) teacher educators' cognitions and practices related to pedagogical technology integration. The focus concerns five native-English speaking teacher educators (TEs) within a teaching English to speakers of other languages (TESOL) training program at a South Korean university. The goal was to determine 1) TESOL-TEs' cognitions regarding the pedagogical purposes and efficacies of 21st–century digital technologies, 2) TESOL-TEs' uses of such technologies in their practice, and 3) factors related to TESOL-TEs' decisions of whether and how to integrate technologies into their praxis.

Data collected over twenty weeks in 2013 included four rounds of semi-structured interviews and two sets of classroom observations for each of the five focal participants, interviews with program administrators, written reflections, field notes, photographs, and document review. Data were coded using King's (2004) template analysis method. Categories were based on constructs from the technological, pedagogical, and content knowledge (TPACK) framework (Mishra and Koehler, 2006) and the Unified Theory of Acceptance and Use of Technology (UTAUT, Venkatesh et al., 2003) and UTAUT 2 (Venkatesh et al., 2012).

The focal participants displayed high levels of TPACK and used Web 2.0 applications extensively to facilitate interactions in their roles as teacher educators. It was found that UTAUT factors guided TEs' decisions and use behaviour to varying degrees, but that the mediating factor of age did not relate to TEs' decisions in the manner predicted by the UTAUT. TEs' cognitions both coincided with and diverged from their practices.

This study contributes to research gaps on the roles, cognitions, and technology-related practices of TESOL-TEs in South Korea. Research on TEs in different contexts is recommended to gain further insights into the connections among these factors. TESOL program administrators and TEs will particularly benefit from the light shed on teacher educator cognitions and practices in this study.

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GLOSSARY AND ABBREVIATIONS

Android	An operating system for smartphones and tablets
Blog	A frequently updated webpage, often by an individual; from "weblog" (also a verb)
Blogspot	A blogging tool
BLP	Blended learning program: a program offered partly online and partly face-to-face
CALL	Computer-assisted language learning. Now, more frequently encompassed under MALL (mobile-assisted language learning) and TELL (technology-enhanced language learning)
CELTA	Certificate in Teaching English to Speakers of Other Languages: a widely recognized English teacher training course and qualification provided by Cambridge University Local Exams Syndicate and the Royal Society of Arts
ClassJump	A learning management system for managing multiple classes
CLIL	Content and language integrated learning: an approach to language learning and teaching that combines learning about subject matter through a target language
CPD	Continual (continuing, continuous) professional development
CU	"Central University": the pseudonym for the university in this study
DELTA	Diploma in Teaching English to Speakers of Other Languages: a widely recognized English teacher training course and qualification, provided by Cambridge University Local Exams Syndicate and the Royal Society of Arts (more involved than the CELTA)
Dropbox	A cloud-based file-sharing tool
EE	Effort expectancy: in the UTAUT, "the degree of ease association with use of the system" (Venkatesh, n.d.)
EFL	English as a foreign language: often denotes English language learning and teaching in non-English-speaking environments
EL	English language
ELT	English language teaching

F2F	Face-to-face: in person, rather than online
Facebook	An online social networking system (most users in the world in 2013, BizMBA Rank, September 2013)
FC	Facilitating conditions: in the UTAUT, "the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system" (Venkatesh, n.d.)
Google+	An online social networking system (ranked sixth worldwide for most users in 2013, BizMBA Rank, September 2013).
Google Glass	A wearable device (like eyeglasses) created by Google
Hagwon	(Korean) A for-profit private academy, cram school, tutoring business, or institute
HM	Hedonic motivation: in the UTAUT 2, "the fun or pleasure derived from using a technology" (Venkatesh et al., 2012, p. 161)
ICT	Information and communications technologies: communication devices, services, and applications
iPad	A touchscreen tablet made by Apple Inc.
INSET	In-service education of teachers
IT	Information technology: the use of computing technologies, including hardware, software, networking, and processes, to exchange electronic data
L1	First language
L2	Second language (in English language teaching, also referred to as the "target language")
LMS	Learning management system: an application (usually Web-based) for the planning, implementation, management, and assessment of learning processes.
Linkedin	An online professional network where people post curriculum vitae
MOE	South Korea's Ministry of Education
MOOC	Massive open online course: an open access online study course available free of charge, often provided by leading universities around the world

NEST	Native-English-speaking teacher
NNEST	Non-native English-speaking teacher
PE	Performance expectancy: in the UTAUT, “the degree to which an individual believes that using the system will help him or her to attain gains in job performance” (Venkatesh, n.d.)
PRESET	Pre-service education and training of teachers
RFID	Radio-frequency identification device
SI	Social influence: **“**The degree to which an individual perceives that important others believe he or she should use the new system.” (Venkatesh, n.d.)
Skype	A computer program that enables free voice or videoconferencing calls over the Internet
SLA	Second language acquisition: the study of the processes by which people acquire an L2
SugarSync	A cloud-based file sharing tool
TE	Teacher educator (in this study, synonymous with teacher trainer)
TESOL	Teaching English to speakers of other languages: a widely used term for the field of teaching English as an additional language to non-native speakers of English
TeacherKit	A class management app
TPACK	Technological, pedagogical, and content knowledge: a conceptual framework (Mishra & Koehler, 2009)
Twitter	A social networking system for microblogging (posting short messages)
UTAUT	Unified theory of acceptance and use of technology: a technology acceptance model developed by Venkatesh et al., 2003
VLE	Virtual learning environment: often used interchangeably with LMS
YL	Young learners: a subset of TESOL that focuses on teaching English to children 12 and under
Web 2.0	An umbrella term for second-generation World Wide Web capabilities characterised by collaboration and interactivity

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DEDICATION

For Mom, Dad, and Jun Hong

CHAPTER 1: INTRODUCTION

1.1 Overview of the Study

This qualitative instrumental multiple-case study investigates teacher educators' (TE) cognitions and practices related to the integration of 21st-century digital technologies into their pedagogies. The specific focus concerns the perceptions and practices of five non-Korean native-English speaking (NES) teachers of English to speakers of other languages (TESOL)-TEs within the context of a South Korean university. The goal was to determine: 1) The nature of TESOL-TEs' cognitions in relation to the pedagogical purposes and efficacies of 21st century digital technologies; 2) TESOL-TEs' uses of such technologies into their practice; and 3) factors related to TESOL-TEs' decisions of whether and how to integrate technologies into their practice.

1.2 Background to the Study

In 1998, at the cusp of Web 2.0, Warschauer and Healey implored readers of the journal *Language Teaching* to consider the changing role of computers in EL teaching (ELT):

> As our focus of attention gradually shifts from the computer itself to the natural integration of computers into the language learning process, we will know that computer technology has taken its rightful place as an important element of language learning and teaching (1998, p. 71).

Since then, the switch to 21st-century (ubiquitous and collaborative) digital technologies has brought about a host of new choices for ELT professionals incorporating information and computer technologies (ICT) into instruction (Al-Mahrooqi & Troudi, 2014; Dudeney & Hockly, 2012; Heim & Ritter, 2012; Kukulska-Hulme, Norris, & Donohue, 2015; Stanley, 2013), with developments applying not only to EL teachers but also to their TEs (Prestridge, 2012; Hwang, 2014).

Recent studies have demonstrated diverse benefits from using technologies with language teacher trainees, including increased intercultural communication (Bauer, deBenedette, Furstenberg, Levet, & Waryn, 2006), greater turn-taking in discourse (Kamhi-Stein, 2000), reflectivity (D. Kim, 2011), noticing (de la Fuente, 2014), and enhanced access and autonomy (Warschauer, 2002; Walsh et al., 2013). While debate persists on how 21st-century digital technologies might best be incorporated into TESOL classes and teacher preparation (Low & Beverton, 2004), and on what pedagogical principles (Webster & Son, 2015), the very existence and wide availability of these technologies, especially in South Korea, necessitates a critical assessment on the part of TESOL-TEs as to their perceived usefulness.

Yet while much has been written about how governments, in-service and pre-service teachers, and learners feel about the incorporation of these 21st-century technologies in ELT, and while scholars have investigated types, possible uses, policies, attitudes about, and barriers to educational technology integration in instruction, (see reviews by Mumtaz, 2006; Ertmer & Ottenbreit-Leftwich, 2010; and Liu, 2013 for an overview of key issues and findings) the literature has left one key area largely unexplored: that of the theories of, uses by, and critical preferences for technology of TESOL-TEs (Hwang, 2014). Even less is known about the cognitions and practices of TESOL-TEs in the Republic of Korea (hereafter referred to as South Korea).

This gap in the literature is problematic for numerous reasons. First, the nation of South Korea is currently one of the most web-connected (OECD, 2015) and technologically advanced societies in the world. The availability of 21st-century digital technologies for training in the country has brought about a common expectation that they could and would get used in teacher education (Jung, 2005). More importantly, decision-making has become more complex: TEs must now determine whether or not and how to use these technologies pedagogically, along with whether or not and how they could teach others to use them. Second, and related to this, a competitive environment for English education in the nation, both within public schools and in the 'shadow' (private, extra-curricular) education

system (Bray, 2013) has led to a rise in quality expectations for newly trained teachers working outside the K-12 sphere (J. Lee, 2011) including their familiarity with newer educational technologies. As TEs make key decisions about the design and delivery of TESOL training in Korea, their cognitions and practices with 21st-century technology integration merit close examination. Finally, TESOL PRESET educators serve in dual or triple roles in training classrooms as teachers of content, as pedagogy trainers, and in many cases, as language instructors. Given the critical relationship between educator cognitions and technology integration practices (Ertmer, Ottenbreit-Leftwich, Sadik, Sendurur, and Sendurer, 2012; Mama & Hennessey, 2013; Prestridge, 2012), and because teachers often integrate new technologies in their teaching if they have experienced ICT skills as learners (Collins & Jung, 2003), TESOL-TEs' cognitions about 21st-century technologies and the use of such innovations in their instruction may not only affect the learning of the teacher candidates they teach, but are likely to make their way into those future teachers' own classrooms. The "unrelenting velocity of change" (Brown, 2008, p. xi) of 21st-century technologies means keeping up-to-date is a challenge for any educator; however, due to the position of TESOL-TEs in making curriculum and delivery choices, they may be relying on their own cognitions and intuitions (Lunenberg, Korthagen & Swennan, 2007) regarding which current areas in technology should be incorporated into their teaching practice. These cognitions and intuitions have been under-investigated in the literature (Davey, 2013).

1.3 South Korea and 21st-Century Digital Technologies in Education

To comprehend the potential of 21st-century educational technologies in TESOL PRESET in South Korea, it is helpful to understand the technological context of the nation as a whole. Fifty-seven years after the Korean War, South Korea has gone from 'barefoot to broadband' (Economist, Dec. 17, 2011), to become a technological powerhouse. In 2012, the nation led the world in household broadband penetration at 97% (ITU, 2013, p. 96) and is the global leader in average connection speeds, with an average of 14 mega-bytes per second (Akamai, 2013, p. 14). South Korea also leads in smartphone penetration, with 75 per cent of its total population on smartphones by July 2013 (KISA, 2013) and a 97.7 per cent

smartphone penetration rate among 18 to 24 year-olds (Emarketer, 2013). The nation is home to the world's second largest community of bloggers, and the average South Korean citizen plays computer games for over an hour daily (Ministry of Culture, Sports, and Tourism, 2013). In short, online activity features heavily in daily life in South Korea.

Moreover, with education (Sanchez, Salinas & Harris, 2011) and ICT development (Jin & Cho, 2015) linked to the survival of economic crises, Ministry of Education (MOE) discourse blends a trifecta of education, science and technology; from February 29, 2008 to March 23, 2013 the MOE was a part of the Ministry of Education, Science, and Technology. Since 2006, every primary and secondary classroom in South Korea has been equipped with Internet access and a computer. Eighty-six per cent of teachers and 99.6% of students use ICT in teaching and learning (KERIS, 2013) and a third of in-service teachers are in annual ICT integration training at any given time. The government has purposefully shifted educational technologies into the ubiquitous-learning (u-learning) stage of development (KERIS, 2013, p. 37). However, such government investment does not apply to the many ELT professionals working in afterschool and private programs. I explore these programs below.

1.4 English Education and TESOL Teacher Education in South Korea

Accompanying South Korea's increasing focus on advanced technologies is what has been dubbed an 'education fever' (Anderson & Kohler, 2012) or 'education arms race' (Choi et al., 2013). South Korean pupils frequently rank first or second on measures of the Programme for International Student Assessment, and the country has the OECD's highest gross rate of enrolment at tertiary institutions (J.C. Shin, 2015) with 98.38% in 2013 (UNESCO, n.d.)

This 'education fever' has been accompanied by 'English fever' (Jeong, 2004; J.K. Park, 2009). The nation's neoliberal emphasis (K. Lee, 2014) on the learning of English for international competitiveness (Graddol, 2006) is represented not only in

employment barriers and in wide-ranging governmental emphasis on 'English for globalization' through mandated English-mediated university courses (K. Lee, 2014) but also in household spending on after-school educational institutes, or *hagwons*. South Koreans spend more private funds per capita on English education than do people from any other country (EF EPI-c, 2014). As of November 2013, a total 17,000 *hagwons* across the nation offered English instruction, or one school for every 647 students in the country (J. Kim, 2013). In 2012, with four out of every five elementary-school aged students in the nation receiving private after-school tuition (Seo & Lee, 2013), 12% of consumer spending in the country went to educational costs, with a large percentage of this for private EL instruction (ICEF Monitor, 2014).

By 2013, tutors and private teachers at *hagwons* for ELT outnumbered their public school counterparts (Ripley, 2013). Expectations for instructors are high in South Korea's competitive ELT industry (Korea Educational Development Institute, 2013) and successful private teachers can earn great respect from their pupils, thereby vying for better positions in a competitive market (Ripley, 2013; Yonhap News, 2013). Technological savvy can serve teachers well in their bid to secure employment, particularly at a time when stricter regulations on *hagwons* combined with Korea's falling birth rate and subsequent decline in YL numbers have led to a scarcity of private teaching positions (T.J. Kim, 2013). At the same time, South Korean EL learners now rely on private education to pass the English component of the high-stakes College Scholastic Achievement Test (CSAT) and survive in university courses (OECD Economic Surveys, 2014), which are English-mediated.

EL instruction outside the regular K-12 arena also includes government-run after-school programs and adult classes at *hagwons*, businesses, and tertiary institutes. These classes, along with the increasing number of English-mediated subject courses on offer from universities aimed at globalizing their student populations (Sharma, 2011), have kept demand high for qualified adult-level EL instructors in South Korea.

While the MOE oversees teacher education for public EL schoolteachers, who must attend four-year teacher colleges and take a competitive exam, those who wish to teach at *hagwons* or in government-run afterschool programs can obtain short English-teaching certificates. One popular option is to attend a TESOL certification program run by a university or designated institute. It is the cognitions and practices of TESOL-TEs in this type of program that are the subject of inquiry of this thesis. Like the participants of the present study, non-Korean NEST TEs may design curriculum and materials and teach graduate-applicable credit courses. Their influence extends to generations of educators in the private TESOL education industry and to public schoolteachers and university lecturers upgrading their ELT skills. And yet, because their professional development and credentials are largely off the radar of the MOE, and because the work of TEs is only just emerging in academic circles (Davey, 2013), these non-Korean TEs are often overlooked in both government policy and scholarly research.

1.5 Purpose of the Study and Research Questions

It is evident that despite TESOL programs directors' insistence on staying up-to-date with technologies (Zhou, Zhang, & Li, 2011), little is known about how South Korea-based TEs perceive and use 21st-century technologies in their own work (Hwang, 2014). Moreover, findings on TESOL educators' perceptions and attitudes to technologies are overrepresented by relatively shallow quantitative data from questionnaires, thereby lacking the rich, deep evidence that can accompany thorough qualitative inquiry (Borg, 2013). The few published studies focus either on South Korean academics (Hwang, 2014) or on non-Korean university English instructors (Webster & Son, 2015).

I set out to fill these gaps in the literature with an investigation of 21st-century technologies used by five NES TEs working in a PRESET TESOL training program in South Korea. This exploration was rooted in two purposes: 1) to gain deep insights into the cognitions and practices of TESOL-TEs in regards to the integration of 21st-century technologies in their practice, and 2) to investigate the factors that influence the intentions of these TEs in this integration.

1.6 The Nature of This Thesis

Three strands of research frame this study: theories about educators' cognitions, especially within the areas of EL teacher education; concepts about cognitions of and attitudes toward the integration of technologies into teaching practice; and ideas about the roles of TEs. Shaped by the underlying purposes of the study, the following research objectives emerged:

- to identify the purposes for which TESOL-TEs use 21st century digital technologies in their practice;
- to examine the nature of TESOL-TEs' cognitions regarding the 21st-century digital technologies in their practice;
- to identify the factors and relationships that influence TESOL-TEs' beliefs about and decisions to integrate 21st-century digital technologies into their practice.

Three main research questions were therefore examined:

1. How do TESOL-TEs integrate 21st-century technologies into their practice?
2. What are TESOL-TEs' cognitions in relation to the pedagogical purposes and efficacies of 21st-century technologies?
3. What factors influence TESOL-TEs' decisions to integrate 21st-century technologies into their practice?

This study used qualitative, instrumental multiple-case study methodology (Yin, 2009), with data collected from numerous sources. I used constructs from the UTAUT / UTAUT 2 and TPACK frameworks to code data through King's (2004) template analysis method. Figure 1 depicts the aims of the study and the relationships among its goals, research questions, conceptual framework, and data collection

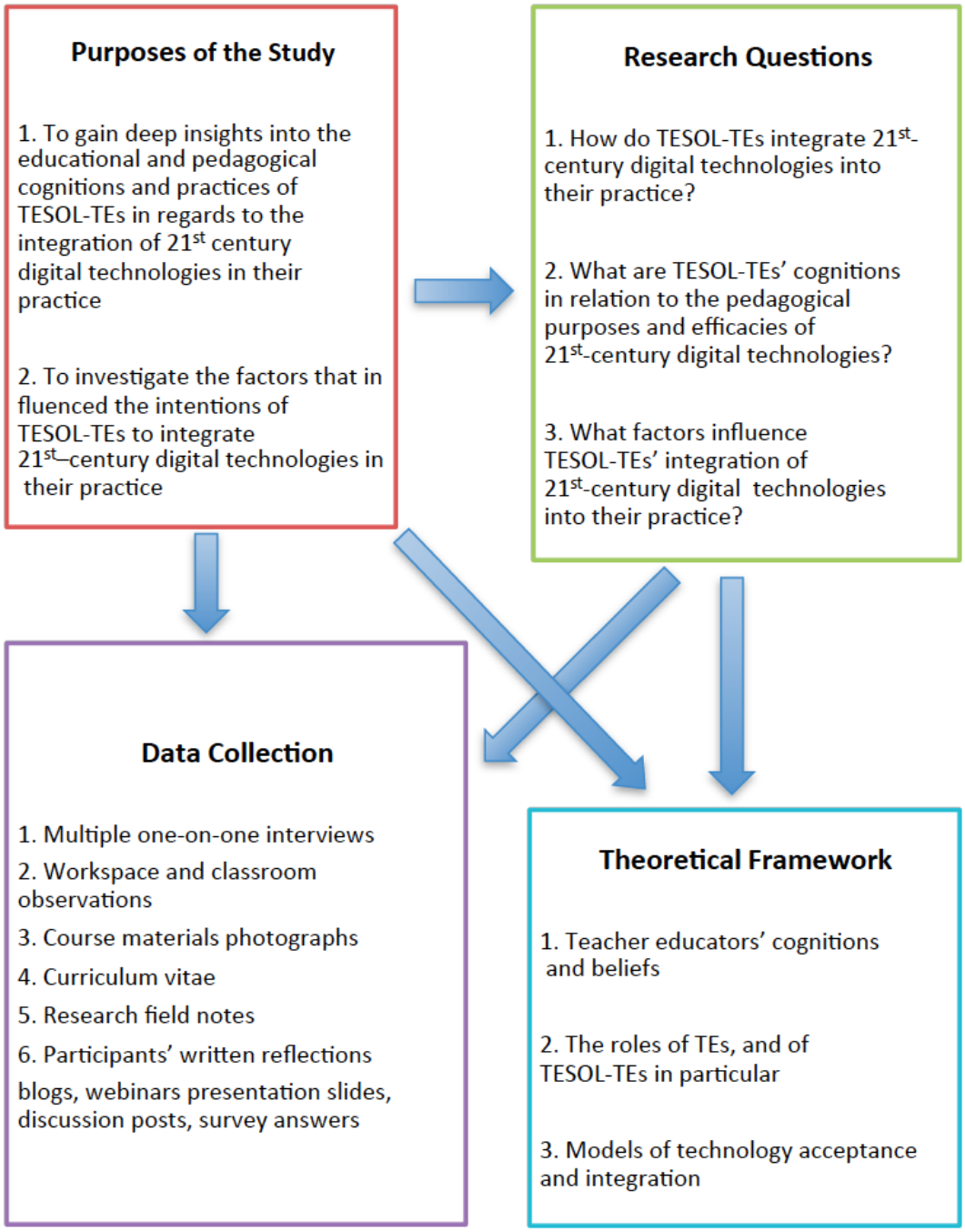

Figure 1. The aims of the study and the relationships among its goals, questions, conceptual framework, and data collection.

1.7 The Contribution of This Thesis

This research aims to address several gaps in the literature. One gap is in the study of TEs in general, and of TESOL-TEs in particular. While an enormous number of studies have been conducted on learners and teachers, research into TEs has only

within the last decade begun to emerge in earnest as an area of serious scholarship (Bai & Etmer, 2008; Davey, 2013; Koster, Brekelmans, Korthagen, & Wubbels, 2005; Martinez, 2008, Loughran, 2005; Lunenberg, Korthagen, & Swennen, 2007), and much of what is known has been derived from self-study and opinion pieces (Berry, 2007; Dinkelman, 2011; Dinkelman, Margolis, & Sikkenga, 2006; Erickson, Young, & Pinnegar, 2011; Fransson & Holmbery, 2012; Gallagher, Griffin, Ciuffeltli Parker, Kitchen, & Figg, 2011; Kim & Greene, 2011; Lovin, Sanchez & Leatham, 2012; Loughran, 2007; Major, 2011; Pinnegar & Murphy, 2011; Ritter, 2011; Russell & Berry, 2011; Williams, Ritter, & Bullock, 2012; Wood & Borg, 2010; Zeichner, 2005). The lack of empirical research is particularly acute for TESOL-TEs in South Korea (Hwang, 2014). This may be due to the position of PRESET TESOL programs outside the sphere of government-controlled teacher education, or it may be a result of reluctance within educational systems to pry into the lives of "experts" (Hwang, 2010, 2014; Webster & Son, 2015). And yet TEs cannot help but act as models for teachers (Lunenberg, Korthagen, & Swennen, 2007) through their behaviour and decision-making. Although the last decade has seen an increase in research on TEs, as of yet, the area is still lacking, and most information on TE cognition and practice must be gleaned from studies on the programs in which TEs work or the perceptions of their trainees. To gain a fuller picture of the people training the next generation of teachers, more direct empirical research is needed on these crucial members of EL education systems.

Another contribution is the use of a deep qualitative case study lens to investigate the ICT-related cognitions, intentions, and relationships of TESOL-TEs. Despite pleas from scholars such as Borg (2013) to test and enhance the knowledge gained from quantitative psychometric measurements of EL educators' cognitions with more in-depth qualitative work, quantitative research still dominates published cognition research in ELT. Recent qualitative work is typically limited to interviews and questionnaires (e.g.: Hwang, 2014), lacking an observation component or document review.

This study also adds to the growing body of literature incorporating cognitive models of technological acceptance and use, including Venkatesh, Morris, Davis, and Davis's (2003) Unified Theory of Acceptance and Use of Technology (UTAUT), and Mishra and Koehler's (2006) Technology, Pedagogical, and Content Knowledge (TPCK, later TPACK) framework. Moreover, TESOL-TEs are under-represented within studies using these models.

Finally, this thesis aims to provide a mirror by which TEs and administrators around the globe may garner reflective insights into their own practices. It is hoped that by reading the richly detailed cases of the five focal participants, TEs in other contexts will consider their relationship with 21st-century technologies and their intentions to integrate new technologies in their work.

1.8 Defining the Terms Used in This Thesis

In interviews and reflections, the participants in this research employed the terms 'teacher' or 'instructor' to describe their own role and 'student' to describe the role of their trainees. While their use of these terms may relate to participants' perceived identities related to their work, to avoid confusion in this thesis I use the term 'TE' to refer to the key participants and to instructors who work with pre-service or in-service trainees mentioned in sections of the literature review related. Outside of verbatim excerpts from participant interviews, I use the term 'student' to refer to learners who are not trainees or TEs. The term 'trainees' refers to the pre-service teacher candidates in this study, many of whom were already practicing teachers. Although some scholars separate 'teacher training' and 'teacher education' (Richards, 2008), due to the lack of consensus I use the terms interchangeably here. The generic term 'educators' refers here to in-service teachers and TEs. The term 'teaching' refers to the general act of instructing learners, whether teacher candidates or pupils. Although I prefer the inclusive term 'teacher of English as an additional language' (TEAL), I use the more ubiquitous 'TESOL' here in line with the common term for training programs in ELT.

The literature offers no consensus for a definition of the term '21st-century digital technology.' In this thesis, I use the term to refer to information and computer-based technologies that are ubiquitous (accessible through mobile networks anytime or anywhere) and/or collaborative (involving meaningful interactions among users of the technology and which have come into common use as of the year 2000. For clarity, Appendix A offers an overview and more detailed definitions of types of technologies discussed throughout the study.

1.9 Organization of This Thesis

The thesis contains eight chapters. Chapter 1 provides an introduction, outlines the background of the problem, and briefly explains the study's purposes, line of inquiry, methodological details, and contributions. Chapter 2 delineates the principal conceptual frameworks that guide the study. Chapter 3 reviews the recent literature in the three strands of research, following a path of inquiry from more general ideas about the cognitions and practices of educators to more precise studies applied to TEs, to TESOL-TEs, and to South Korean cases in particular. Chapter 4 describes the research methods and includes a rationale for the use of exploratory multiple-case studies and qualitative data collection and analysis. It also outlines the processes of participant recruitment and data organization, transcription, and coding. Chapter 5 delineates the study's findings on practices through detailed accounts and analyses of individual cases and through an examination of the salient themes across multiple cases. Chapter 6 describes the 21st-century technology-related cognitions of the TEs in this study. Chapter 7 investigates other factors connected to TEs' decisions to integrate these technologies into their practice. Chapter 8 includes a discussion of the findings as they relate to the study's purposes and conceptual framework and delineates implications of the study as they relate to the original purposes of the study. It also describes limitations of the research and offers suggestions for future research directions.

CHAPTER 2: CONCEPTUAL FRAMEWORK

2.1 Chapter 2 Introduction

In this chapter, I situate the research within a conceptual framework and provide a rationale for the choice of theories embedded in the coding scheme of this thesis. This study is grounded in theories about educators' cognitions (especially within the areas of TESOL and teacher education), in models of the integration of technology, and in theories about the roles of TEs.

2.2. Theories on Educators' Cognitions

Primary to understanding why TEs adopt certain technology-related behaviours is to grasp their cognitions—what teachers "think, know, and believe" (Borg, 2006, p. 1)--related to technologies and to their practice. While early research on teachers' practice focused exclusively on what educators were observed to do in classroom contexts, scholars have come to recognize that delving deeper into educators' ways of thinking provides a much fuller picture of the underlying aspects of their behaviours (Borg, 2015). In this perspective, educators are attributed a more active role in decision-making processes than was provided in past approaches to the investigation of teachers' practices (Borg, 2015; Clark & Peterson, 1986; Freeman, 1989; Oda, 2011; Parker, 1989).

Due to the proliferation of terms for similar concepts within the field of educators' cognitions, defining concepts can at times seem like a "game of player's choice" (Pajares, 1992, p. 309). In a review of language teacher cognition research, Borg (2015, p. 36-39) lists thirty-one key terms for overlapping concepts within the literature, some of which have multiple uses and definitions. Borg (2015) points out that varied terms such as 'implicit theories,' 'beliefs,' 'case knowledge,' 'practical knowledge,' 'schema,' 'professional craft knowledge,' 'perspective,' 'orientations to teaching,' and 'conceptions,' denote indistinguishable phenomena.

Moreover, the “interconnected conceptual areas” (Woods & Çakır, 2011, p. 381) of teachers’ knowledge and teachers’ beliefs are often conflated, with both terms used interchangeably in the literature. Philosophically, it is unlikely that we can truly determine where an educator’s beliefs end and knowledge begins, (De Corte, & Verschaffel, 2002; Leatham, 2006; Op 'T Eynde). Nevertheless, some researchers on teachers’ cognitions (e.g. Fenstermacher, 1994; Furinghetti & Pehkonen, 2002; Green, 1971) have attempted to differentiate the two concepts. Green (1971), for example, categorized beliefs as subjectively held as true by individuals, but without a “truth condition,” and knowledge as requiring evidence within the community to support claims (in Richardson, 2003, p. 3).

In this thesis, such a division would prove unsatisfactory for several reasons. First, Mishra and Koehler’s (2006) TPACK framework does not distinguish between so-called objective (formal, public) knowledge and subjective (informal, personal) knowledge/ beliefs. Moreover, the stuff of TESOL education provides very little that could be denoted as having a so-called truth condition. While concrete subject matter within the field of linguistics, such as morphology or phonology, may offer some objective ‘truths,’ the questions of just how teachers should be taught and what they need to know—even the potentially objective matter of what trainees are being taught or what they already know— is information of a very slippery nature. For example, it may be a part of a teachers’ knowledge framework that the use of third-person ‘s’ is typically acquired after the *be*-copula in L2 English acquisition. It may be the subjective knowledge (or a belief, or epistemology, or a perception) of a TE that this structure should therefore not be taught before *be*-copula use has been acquired. It may also be subjective knowledge/belief that second language teacher candidates should learn about any of this information. However, how these ideas intersect within a TE’s mind is unclear. It is evident that personal theories, biographies, and learning trajectories will affect the way educators arrive at a particular use of knowledge in the first place (Beauchamp & Thomas, 2009; Brody & Hadar, 2011; Gee, 2001).

Moreover, as this study investigates teachers’ thought processes and praxis, the

need for a distinction between knowledge and beliefs is somewhat moot here. Fenstermacher (1994) argued there was important distinction between knowledge and beliefs if "one intends to make claims about epistemic import" (p. 31). As that is not the goal of this thesis, I make no attempt here to distinguish between constructs of TE belief/knowledge that may be profitably "viewed as complementary subsets" (Leatham, 2006, p. 92). Instead, I employ Woods' (1996, in Woods, 2003) Beliefs, Assumptions, Knowledge framework which recognizes that these areas of cognition influence one another. I follow Borg's (2015 p. 35) perspective on the "recurrent ideas which, collectively, characterize the essence" of language teacher cognitions: they tend to be a) personal, b) practical c) tacit, d) systematic, and e) dynamic "mental constructs held by teachers and which are…defined and refined on the basis of educational and professional experiences throughout teachers' lives" (p. 35).

2.3 Educators' Cognitions and Practices

The relationship between thinking and behaviour is also complex. Many educators may not realize that what they profess is not what they do (Belland, 2009). Nevertheless, while espoused beliefs may not always be equated with enacted ones (Basturkmen, 2012; Borg, 2001; Borg, 2011; Borg, 2013; Chai, 2010; Cundale, 2001; Fishbein & Azjen, 1975; Guskey, 1986; Kagan, 1992; Phipps & Borg, 2009), there is still evidence that they support intentions and decisions made by educators in their practice (Borg, 2003; Fang, 1996; Gatbondon, 2008; Golombek & Doran; 2014; Johnson, 2009; Kagan, 1992; Kubaniyova, 2012; Munby, Russell, & Martin, 2001; Nespor, 1987; Pajares, 1992; Richards & Lockhart, 1994; Richardson, 2003; Tsui, 2003; Woods, 1996; Woods & Çakır, 2011).

In reality, the connection between cognitions and praxis may be something closer to Cobb, Wood, and Yackel's (1990) view that these areas are interdependent and that they develop together. Instead of a linear, direct causal relationship between cognitions and practice, a perspective in which beliefs *shape* rather than directly *transform* practice, is more reflective of the complex relationship between the two concepts (Carter and Norwood, 1997). This is consistent with Clark and Peterson's

(1986) seminal model of teacher thought and action, in which teachers' thought processes both influence and are influenced by teacher's actions and further affected by the occurrence of constraints and opportunities (see Figure 2). My study borrows from Clark and Peterson's model, but does not investigate the ever-elusive link between cognitions and student achievement.

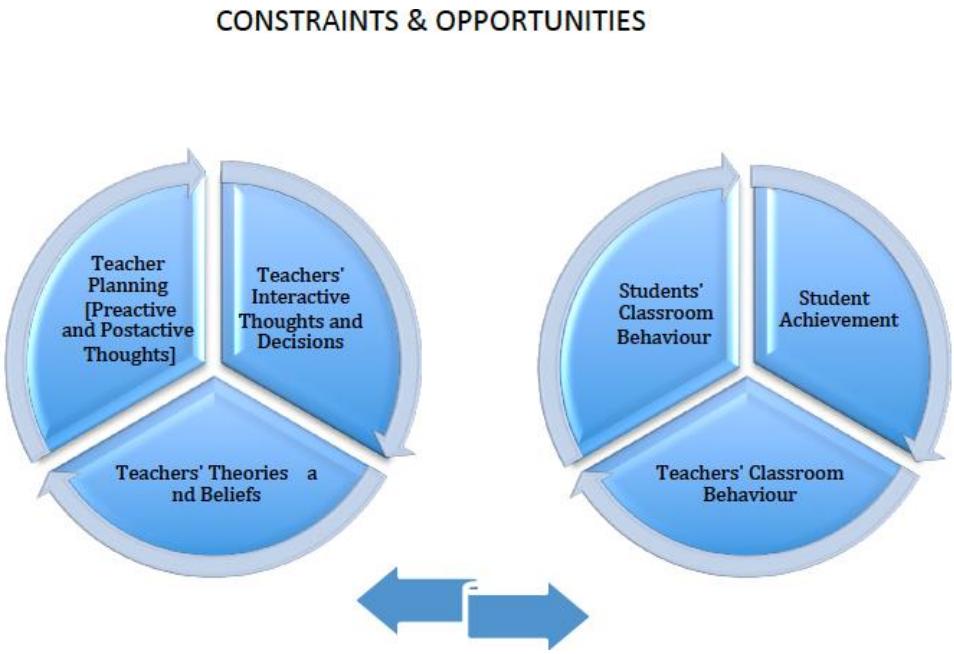

Figure 2. A model of teacher thought and action

Note. Adapted from C.M. Clark and P.L. Peterson, 1986, in M. C. Wittrock (Ed.), Handbook of research on teaching (3rd ed), New York: Macmillan. p. 257).

2.3.1 Social Psychology Research and Technology Acceptance

Over the years, a number of powerful social psychology-based models of technology integration have been developed based on people's cognitions and the concept of individual technology acceptance: "people's attitude to the uptake and use of different technologies" (Oshlyansky, Cairns, & Thimbleby, 2007, p. 83). Figure 3 demonstrates the underlying concept of such models.

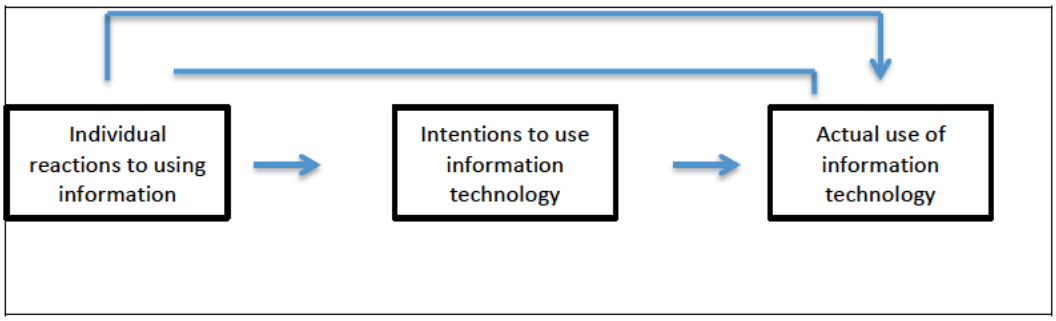

Figure 3. The basic concept underlying user acceptance models

Note. Basic Concept Underlying User Acceptance Models. Adapted from "User Acceptance of Information Technology: Toward a Unified View," by V. Venkatesh, M.G. Morris, G.B. Morris, & F.D. Davis, 2003, *MIS Quarterly*, 27(3) p. 427. Copyright 2003 by MIS Quarterly.

Venkatesh et al. (2003) noted that the proliferation of competing technology acceptance and social cognition models had still not produced a catch-all framework that encompassed people's intentions and behaviours related to adopting technologies, forcing researchers to "pick and choose" (p. 426) among a variety of competing models which all described to varying degrees an interplay among individual reactions to using IT, intentions to use IT, and IT use.

To unite the models, Venkatesh et al. developed the UTAUT (2003), a model which empirically compared and synthesized human-computer interaction (HCI) constructs from the Technology Acceptance Model with seven other models, including the Theory of Reasoned Action, the Theory of Planned Behaviour, innovation diffusion theory, motivational model, and social cognition theory (see Appendix B for an explanation of these models). The four core constructs of the UTAUT are 1) performance expectancy (PE), 2) effort expectancy (EE), 3) social influence (SI), and 4) facilitating conditions (FC). The model posits that the first three of these constructs influence a user's technology acceptance and behavioural intention, which in turn influences adoption. Facilitating conditions, on the other hand, are held as direct determinants of use behaviour. The four moderators acting upon the core constructs are gender, age, experience, and voluntariness of use. Since the original publication of the UTAUT, Venkatesh, Thong, and Xu (UTAUT 2,

2012) have refined the model to adapt it to technology consumer behaviour rather than that of employees in organizations. Voluntariness was replaced by hedonic motivation ("the fun or pleasure derived from using a technology", p. 161), price value ("when the benefits of a technology are perceived to be greater than the monetary cost", p. 161), and habit, (a self-reported perception, measured as "the extent to which an individual believes the behaviour to be automatic", p. 161), as shown in Figure 5. It is important to note that FC and habit are both shown as direct determinants of use behaviour.

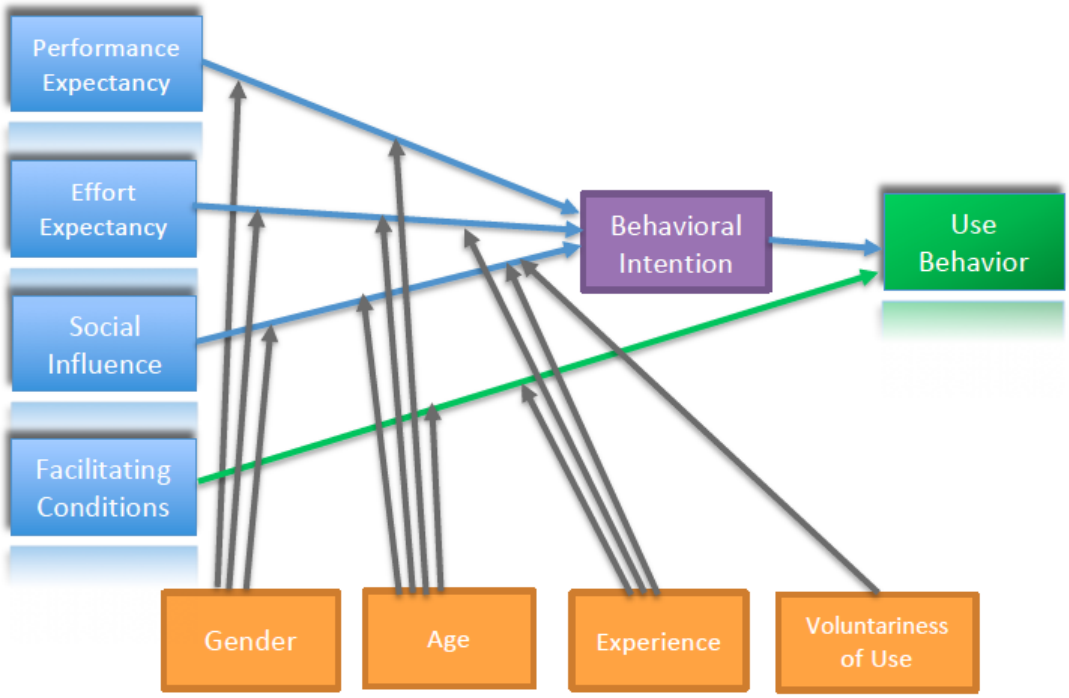

Figure 4. The Unified Theory of Acceptance and Use of Technology Model (UTAUT)

Note: UTAUT Model. Adapted from (Venkatesh, Davis, Davis, & Morris, 2003; figure adapted for clarity) "User Acceptance of Information Technology: Toward a Unified View," by V. Venkatesh, M.G. Morris, G.B. Morris, & F.D. Davis, 2003, *MIS Quarterly*, 27(3) p. 447. Copyright 2003 by MIS Quarterly.

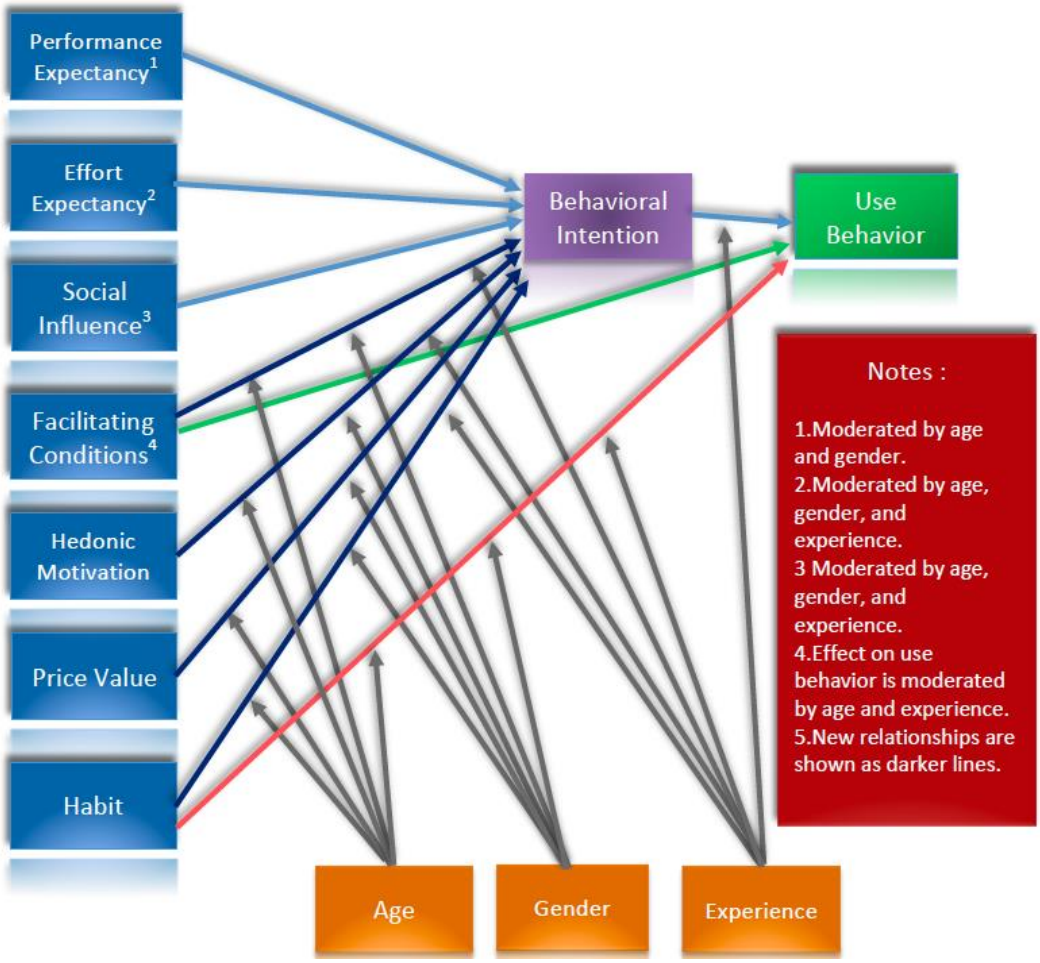

Figure 5. The Unified Theory of Acceptance and Use of Technology Model 2 (UTAUT 2)

Note. UTAUT 2 V. Adapted from "Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology." Venkatesh, J. Y. L Thong, & X. Xu, 2012, *MIS Quarterly,* (36)1, p. 160. Copyright (2012) by MIS Quarterly.

2.3.2 Rationale for Using the Unified Theory of Acceptance and Use of Technology (UTAUT)

Technology acceptance refers to "a user's willingness to employ technology for the tasks it is designed to support" (Teo, 2011, p. 1). Studies of the UTAUT have found it a robust tool of analysis in investigations of users' technology acceptance (Lakhal, Khechine, & Pascot, 2013; Neufeld, Dong, & Higgins, 2007; Oye, Iahad, & Rahim, 2014). In longitudinal field studies of organizations, the UTAUT explains approximately 70 % of variance in behavioural intention of use and around 50 % of

variance in actual technology use (Venkatesh, Thong, & Xu, 2012). It is true that the UTAUT is complicated (Bagozzi, 2007). However, it is precisely its comprehensiveness that provides the UTAUT with the level of detail suitable to piece apart the rich, textured data of a case study. The UTAUT 2 helps to build on the complex technology adoption case of TEs; because they work both as employees of an organization and as individual professionals free to choose many of the technologies they adopt in their own classrooms, they straddle two user profiles. I have therefore incorporated salient constructs from both versions of the UTAUT model into the conceptual framework of this thesis. However, because this study does not aim to determine causal relationships, I use the constructs only as themes by which to analyse the factors guiding TEs' decisions rather than as direct indicators of causes and effects of behavioural intention and behavioural use.

2.3.3 Technological Pedagogical and Content Knowledge (TPACK): A Model of Teachers' Knowledge

Adding a technological component to Shulman's (1986; 1987) model of pedagogical content knowledge, Koehler and Mishra's (2006) technological, pedagogical, and content knowledge (TPACK) model attempts to detect the interactions and relationships among these three cognition bases (see Figure 6). It must be noted that in this model knowledge could comprise both objective and subjective types.

Shulman's model follows the precept that a teacher's knowledge about a subject like math or English—his/her content knowledge (CK)-- does not necessarily mean that the teacher has the pedagogical knowledge (PK), the "deep knowledge about the processes and practices of methods of teaching" (Koehler & Mishra, 2009, p. 64), to best activate students' learning. Shulman's (1986) concept of pedagogical content knowledge (PCK) denotes teachers' ability to convert subject matter into learning opportunities for students. The TPACK model maintains that knowledge about technology (TK) alone does not necessarily indicate that a teacher will know ways of using a technology to maximize student learning. Koehler and Mishra (2009) note that while technologies could be analogue or digital, it is the newer digital technologies that inherently present more complexity for decisions on task-

technology fit. Teachers' TPACK is not simply their knowledge of how to use a technology, but their understanding of existing technologies and how to select, match, and utilise them to the greatest effect. See Appendix C for an explanation of the TPACK constructs.

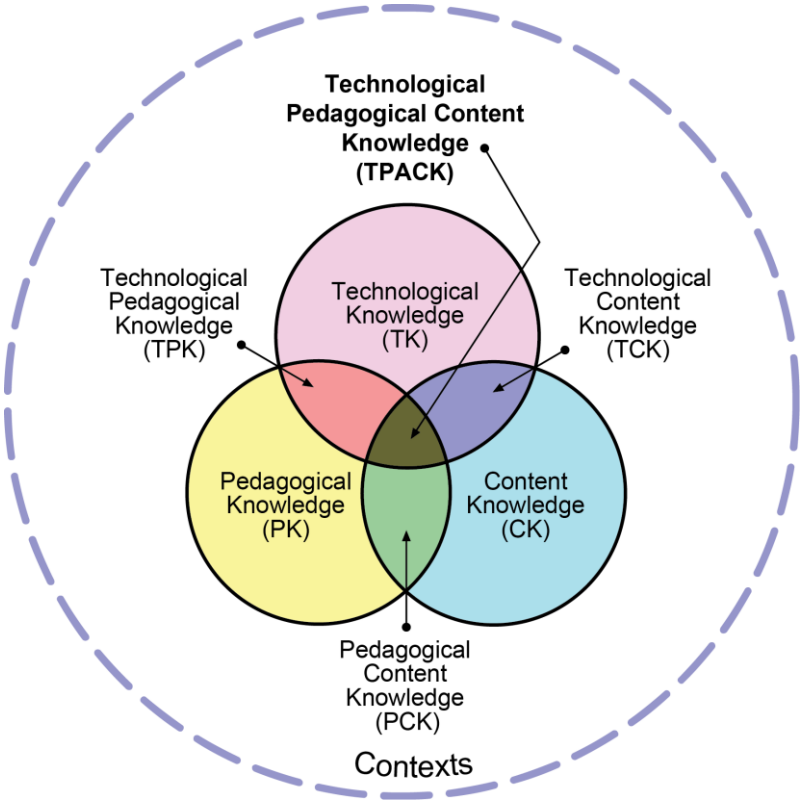

Figure 6. Technological, Pedagogical, and Content Knowledge (TPACK) Model

Note. TPACK Model. Reprinted from TPACK.org, by M. Koehler & P. Mishra, 2012, Retrieved from www.tpack.org. Copyright (2012) by tpack.org. Reprinted with permission of the publisher.

2.4 Conceptualizing the Roles of Teacher Educators

In creating a framework with which to explore the cognitions of TEs in relation to the uses of technology in their practice, it is important to consider what it is that TEs do. It is clear that they have multiple roles. Although they may professionally self-identify primarily as teachers of learners (Lunenberg & Hamilton, 2008; White, 2014; Young & Erickson, 2011), as trainers (Vanassche & Kelchtermans, 2014), as researchers (Hwang, 2014), or as TE-researchers (McGregor, Hooker, Wise, &

Devlin, 2010; Patrizio, Ballock, & McNary, 2011), it is evident that there is a peculiarity to "teacher educating" (Goodwin et al., 2014, p. 284) that separates TEs from teachers of students. I explore this unique trait below.

2.4.1 Teacher Educators as Pedagogues and Teaching Models

Several explanations are posited for the influential role of TEs in the "multi-layered work" (Lunenberg & Hamilton, 2008, p. 189) of their profession. In their pedagogical role, their tasks may include selecting content and designing courses, developing tasks and modes of assessment, and providing feedback. The underlying pedagogical goal is not one of mere transfer or transition, but of transformation for better decision-making by trainees in their own future classrooms (Middleton & Baartman, 2013) based on the development of knowledge, skills, attitudes, and awareness (Freeman, 1989). This aim does not entail a mere passing-down of knowledge, but is rather a process of building teachers' ability to exercise "judgment about when to use particular practices and how to adapt them to the specific circumstances in which they are teaching" (Zeichner, 2005, p. 118).

This enhanced ability of trainees matters because in-situ decision-making is at the core of virtually all teaching (Shulman, 1987). In engaging trainees with information and techniques to aid in the decision-making process, TEs can aid in both the interactive decision-making (Parker, 1984) and the "professional self-construction" (Freeman, 1989, p. 43) and personal pedagogies (Grierson, 2010) of teacher-learners. Through modelling, discussion, reflective opportunities, and feedback (Lunenberg & Hamilton, 2008) TEs can help trainees to identify areas of practical professional knowledge to apply to later decision-making (Bullough, 2005; Chitpin, 2011; Lunenberg & Hamilton, 2008, Pienaar & Lombard, 2010; Zeichner, 2005).

In this pedagogical aspect, TEs match trainers in other fields. However, an important distinction for TEs focuses on their special role as teaching models. Several studies (Loughran & Berry, 2005; Lunenberg, Korthagen, & Swennen, 2007; Regenspan, 2003; Swennen, Lunenberg, & Korthagen, 2008) remind us that unlike other kind of trainers, TEs support learning while also acting as implicit or explicit models of

teaching itself—of 'walking the talk' (Guilfoyle, 1995; Loughran & Berry, 2005). Doctors who teach medicine do not treat their students; TEs, on the other hand, do teach teachers, and thereby act as role models (Lunenberg et al., 2007). As second-order practitioners, they must therefore think beyond the first-order practice of classroom teaching to students to the meta-practice of working with people who will eventually work on their own with students (Murray & Male, 2005; Rodriguez-Arroyo & Loewenstein, 2013; Swennan, 2007; Swennan, Lunenberg, & Korthagen, 2008). Thus Met (2006 in Oda, 2011) asserts on the importance of language TEs:

> Because their responsibility for shaping the next generation of language teachers and learners is so significant, postsecondary faculty need to acknowledge the centrality of their role and exemplify the vision of what language education should be (p. 62).

2.4.2 Teacher Educators as Self-regulatory Professionals

Despite their ultimate role as teacher models and as developers of decision-making skills, "being a TE is to forge a professional identity in a field organised around what are, at best, uncertain principles and methods to guide decision-making" (Dinkelman, 2011, p. 316). Teacher educating itself is a vague field with "no straight career paths" (Lunenberg & Hamilton, 2008, p. 190). Because the personal history and trajectory of an educator includes particularly diverse possibilities and limitations offered by institutions and other people (Bullough, 2005; Gee, 2001), TEs may form their own identities as self-regulatory professionals (Wood & Borg, 2010). As was the case for the participants in the present study, TEs frequently lack specific training for their roles as second-order practitioners (Karagiorgi & Nicolaidau, 2013). They enter the field with folk pedagogies learned elsewhere in their lives (Belland, 2009) and form their roles in part through an apprenticeship of learning (Lortie, 1975) upon entering the workplace. TEs face tensions regarding their identities (Berry, 2007; Grierson, 2010; Williams, Ritter & Bullock, 2012) and their emotions (Day & Leitch, 2001) that consequently influence their work. They often encounter administrative, pedagogical, and technological tasks for which they may lack training (Martinez, 2008). Many feel self-doubt upon transitioning from the school

classroom to their position as a TE (Dinkelmann, 2011; Dinkelmann, Margolis, Sikkenga, 2006; Grierson, 2010; Guilfoyle, 1995; Walker, Gleaves, & Grey, 2006; Wood & Borg, 2010; Zeichner, 2005). In university settings, TEs may be hired for their content or discipline knowledge, with little or no attention paid to their knowledge of teacher educating methods (Cochran-Smith & Lytle, 1999; Goodwin, Smith, & Souto-Manni, 2014) or their beliefs (Jacobs, Assaf, & Lee, 2010). Zeichner (2005), for instance, writes of a one-day training for practicum supervisors as the only formal training required for their important role.

Teacher educating, then, likely entails being a self-regulated professional (Hökkä & Eltäpelto, 2014). In recognition of the self-regulatory nature of the field, there have been multiple attempts over the past fifteen years to clarify the indispensable competences and standards for TEs. The Association of TEs in the Netherlands (VELON) began the millennium by providing a set of five competences: subject, pedagogical/didactical, organizational, communication, development/growth (Koster & Dengerink, 2001). The U.S.-based Association for TEs (ATE) developed nine standards for "accomplished TEs" (ATE, 2002, p. 1). The Association for Teacher Education in Europe (ATEE) includes a research and development committee focused on investigating the professional competences and development of TEs. Shagrir and Altan (2001) identified characteristics of expert TEs. Koster et al. (2005) synthesized Dutch TEs' survey answers to develop a competence profile (p. 167) of TEs. Goodwin et al. (2014) compiled a list of knowledge points for TE preparation that included a strong background in theory, knowledge about teacher education, mentorship/apprenticeship in teaching/research, and mentoring around professional life. Research from Israel's MOFET Institute on TE professional development highlighted quality and roles (Ben-Peretz, Kleeman, Reichenberg, & Shimoni, 2010). Boyd, Harris, and Murray (2011) compiled a set of induction guidelines for new TEs in the UK. Goodwin et al. (2014) stressed a knowledge-for-practice/ knowledge-in-practice model of teacher educating, while Wilson (2006) looked at the knowledge requirements of TE-researchers. Meanwhile, Baecher (2012) constructed a list of desirable attributes tailored to TESOL-TEs.

Nevertheless, it is evident that like with other professionals, personal trajectories, histories, and contexts come into play in the praxis of TEs, forming a localized knowledge mediated through personal history (Young & Erickson, 2011). The moments of tension encompassed in professional learning are personally constructed and faced (Grierson, 2010) and may require creative coping (Solbrekke and Sugrue, 2010). Cochran-Smith (2003) maintains the pedagogical knowledge of TEs must be gleaned from 'inquiry as stance': an on-going generative, reflective, critical, collaborative, and reflexive investigation of their own practices, coming together to form a 'local knowledge of practice' (Zeichner, 2005). Richardson (2003) asserts that educators' beliefs about teaching shape their own views of their roles in their profession, thereby influencing their pedagogical decisions. Therefore, in this thesis, I conceptualize TEs as both individuals with their own personal trajectories and workplace learning (Boyd, Harris, & Murphy, 2011) and their own pedagogical vision (Stürmer, Könings, & Seidel, 2015), in addition to their status as members of an emerging profession with a shared knowledge base (Vanassche & Kelchtermans, 2014).

2.5 Three Threads into One: TESOL Teacher Educators and 21st-Century Digital Technologies

By drawing on three strands of research for the conceptual framework of this thesis, I connect teacher cognition-practice theory, TE models, the UTAUT, and the TPACK model. The resulting framework fits under a wider-ranging model that views TEs as consumers/individuals, organisational members/users, and pedagogical decision-makers: in essence, technology-using language teaching professionals.

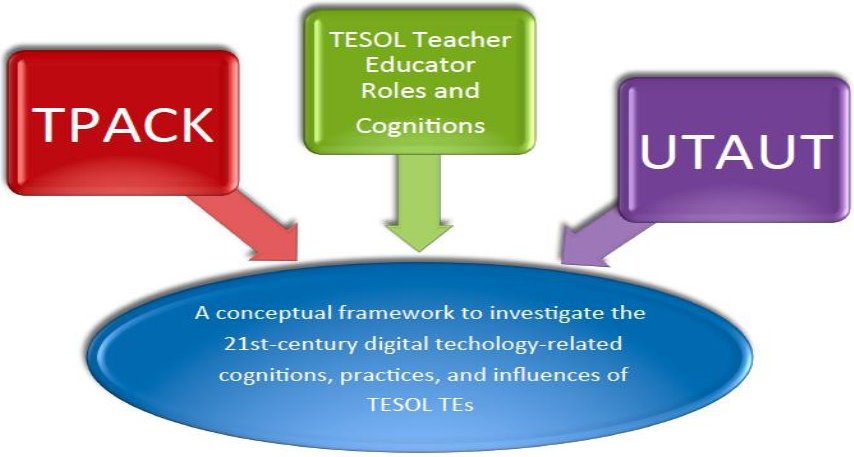

Figure 7. A conceptual framework to investigate the 21st-century digital technology-related cognitions, practices, and influences of TESOL teacher educators

CHAPTER 3: REVIEW OF THE LITERATURE

3.1 Chapter 3 Overview

The previous chapter outlined the conceptual framework in which this thesis is grounded, focusing on educators' cognitions, technology adoption, and the roles of TEs. Chapter 3 overviews the scholarly research relevant to those three areas, particularly as they relate to higher education and South Korean contexts, and highlights the gaps within the literature. I focus especially on the findings from empirical studies, with divisions among types of participants and contexts. I also offer some explanation of the research methods used.

3.2 ICT Integration in Education

3.2.1 Teachers' Cognitions and the Integration of Technologies into Teaching Practice

To date, much research on technology integration in classrooms has focused on barriers to adoption. In one perspective, 'first-order barriers' such as hardware, software, and computer support fall beyond immediate control of teachers while 'second-order barriers' are teacher-intrinsic and include pedagogical beliefs and customary practices (Ertmer, 1999; Kreijns et al., 2013; Petko, 2012). Another model presents these as material or non-material obstacles (Pelgrum, 2001). It has been argued that these non-material, second-order barriers hold perhaps the greatest influence over ultimate integration over ICT; in a 'will, skill, tool' model of ICT integration (Petko, 2012), it is the educators' will that comes first. Deficit models highlighting barriers have pinpointed teachers' beliefs, dispositions, and willingness to take risks as the single greatest aid or obstacle to the infusion of technology in teaching and learning. This has been found to be the case with studies of elementary school teachers (Becker & Ravitz, 2001; Donnelly, McGarr, and O'Reilly, 2011; Ertmer, 2005; Ertmer, Addison, Lane, Ross, & Woods, 1999; Garthwait & Weller, 2005; Howard, 2013; Liu, 2011; Mama and Hennessey, 2013; Niederhauser & Stoddart, 2001; Palak & Walls, 2009; Pierson, 2001; Petko, 2012; Prestridge, 2012;

Ravitz, 2003; Sugar, Crawley, & Fine, 2004; Windtchitl & Sahl, 2002), high school science teachers (Chien, Wu, and Hsu, 2014; Donnelly, McGarr, & O'Reilly, 2011), higher education professors (Ashrafzadeh & Sayadian, 2015; Gautreau, 2011; Keengwe, 2007; Lucas & Wright, 2009), and TEs and pre-service teachers (Bai & Ertmer, 2004; Cuban, 2001; McVee, Bailey, & Shanahan, 2008). Even when schools are equipped with state-of-the art technologies, the teachers themselves influence the adoption and eventual selective application of these technologies (Chien, Wu, & Hsu, 2014; Kearney, Burden, & Rai, 2014). In this body of research, through their classroom decision-making, the teachers are seen as the conduit through which technology reform or innovation passes.

However, to claim that teachers' cognitions are the sole root of low ICT integration would be an overstatement given the documented existence of barriers such as fixed assessment criteria, a lack of training, and infrastructural deficiencies (Hammond, 2011; Underwood & Dillon, 2011). Moreover, the complexity of classroom life means studies on ICT in education can be somewhat difficult to interpret (Ertmer et al., 2001; Fang, 1996; Kreijns et al, 2013; Teo, 2011), with uptake hard to define. After all, it is not a case of adoption versus non-adoption, but rather a spectrum of ways to think about and use technologies (Prestridge, 2012). Even with SI from perceived high student expectations of the use of such technology (Chen, Guidry, & Lambert, 2009; Turner, Christensen, & Meyer, 2009) teachers may still end up using collaborative technologies in teacher-centred ways that differ little from their use of analogue teaching tools (Bai & Ertmer, 2004; Cuban, 2001). They may need to redesign their courses (Tsai & Chai, 2012). In addition, while individual educators influence technology adoption, their own pedagogic relationships to technologies are, in turn, influenced by the motivations, values, aims, strategies, and styles comprising their pedagogical vision (Friðriksdóttir & Adalbjarnardottir, 2010). Additionally, all these elements are affected by the personal experiences and training paths in educators' professional trajectories (Ertmer et al., 2012). In light of this complexity, the next section explores the multifaceted relationship between pedagogical cognitions and technology integration.

3.2.2 Pedagogical Cognitions and ICT Use among K-12 Teachers

The growing body of research investigating teachers' espoused pedagogical cognitions in relation to their 21st-century ICT integration has dovetailed with an increased academic obsession with constructivism as a learning theory. For the past two decades, a great deal of the research has been underpinned with a positive view of so-called constructivist teaching methodologies (as opposed to behaviourist or didactic methods) and of innovative uses of ICT within classrooms. One review (Clarke, 2013) revealed this stance among most of the 45 VLE (LMS) studies published in the journal *Technology, Pedagogy, and Education* over a twenty-year period. Jonassen (2008) and Bereiter and Scardamalia (2014) found that educational technologies used within a constructivist methodology could encourage students' higher order thinking skills. Becker's (2000) work found a link between teachers' constructivist, student-centred pedagogical beliefs and their incorporation of technology in meaningful ways. The finding that the educators most likely to incorporate technology into their teaching supported student-centred and constructivist methods has been reported in a number of other US-based studies, including Garthwait and Weller (2005), Henry and Clements, (1999), Niederhauser and Stoddart (2001), and Vannatta and Fordham (2004). Ertmer et al. (2012) found that twelve K-12 teachers, award-winners in ICT-enhanced practices, espoused and enacted student-centred practices. Cardenas-Claros and Oyandel (2015) found a correlation between constructivist ICT use by Chilean language lecturers and positive evaluations from students. Petko's (2012) analysis of Swiss secondary educators' ICT-related beliefs, skills, and access revealed a small but significant correlation between teachers' scores on constructivist learning environment scales and their levels of computer use in teaching. It seemed that these teachers would risk investment in such uses (Howard, 2013) even if it temporarily compromised their skill or expertise.

There is, however, confusion between constructivism as an epistemological position and as an instructional strategy (Boden, 2010; de Vries, van de Grift, & Jansen, 2012; Hammond, 2011). What is more, constructivism as a learning theory is widely

interpreted in the literature: some studies position ICT as a way of creating constructivist learning environments, while others implement and evaluate constructivist practices as they relate to ICT-based teaching (Orlando, 2013). While not denying the importance of learner-centred practice, Orlando (2013, 2014) criticizes the single-minded pursuit of constructivist practices as an obstruction to considerations of meaningful pedagogy. Others have questioned the very effectiveness of the 'urban myth' (de Bruyckere, Kirschner, & Hulfshof, 2015) of constructivism in education (Kirschner, Sweller, & Clark, 2006; Mayer, 2004;). There are worries about cognitive overload (Mayer & Moreno, 2010), and about the lack of distinction for the effectiveness of worked examples versus discovery learning for novices and experts (Young, Merrienboer, Durning, & ten Cate, 2014). Attempts to reconcile perceived benefits of constructivist models of teaching and learning and the need for direct interventions have led to such theoretically convoluted approaches as "interactive direct teaching based constructivist learning" (Gurses , Dogar, & Gunes, 2015).

Definitions of effective pedagogy are neither clear-cut nor agreed upon (Coe, Aloisi, Higgins, & Major, 2014; Strong, Gargani, & Hacifazliogle, 2011). What is more, educators' ICT-enhanced praxis can stem from other forces, affordances, and barriers, including what they perceive to be useful (Chen, 2008; Cuban, 2001), their own self-efficacy (Scherer, Siddiq & Teo, 2015), and a comination of pragmatics and perception of what 'works' (Webster & Son, 2015).

The relationship between technology adoption and constructivist methods is in fact complicated by the particular technologies in use, whether in the classroom or for supportive tasks (Sang, Valcke, van Braak, Tondeur, & Zhu, 2010; Tondeur, van Braak, & Valcke, 2007). ICT use has been found to be a part of teachers' professional identities, with perceived constructivist technology use to be a part of who they were as teachers (Rasku-Puttonen et al., 2004; Tondeur, van Braak, & Valcke, 2007; Sang, Valcke, van Braak, Tondeur, & Zhu, 2010). Sang, Valcke, van Braak, and Tondeur (2011) found a similar result from surveys with pre-service teachers in China. In a recent study Chien, Wu, and Hsu (2014) noted an influence of

teachers' perceptions of ICT on uptake and integration in their practice. However, it is not clear whether the research suggests an alignment between teachers' espoused student-centred beliefs and what is essentially humanist teaching, or is simply what teachers do naturally.

While some research supports a link between educators' espoused beliefs about ICT integration and their practice, other studies have noted a discrepancy in teachers' cognitions and their integration of technology into their pedagogy. Liu's quantitative (2011) survey respondents in Taiwan were found to hold learner-centred beliefs, their incorporation of technology into practice tended to take a teacher-centred form. Hu, Clark, and Ma's (2003) work in Singapore and Ertmer's (2005) research on US educators showed that while teachers were using ICT for routine tasks, innovative and constructivist use of the technology was limited. Gillen, Staarmen, Littleton, Mercer, and Twiner (2007) found interactive whiteboards were not being used innovatively in primary classrooms in the UK while others (Prestridge, 2012; Webb & Cox, 2004) found teachers unable to meet the challenge of using collaborative ICT tools effectively in their practice, in part due to their beliefs.

Other researchers have focused on creating typologies of ICT-related perceptions held by schoolteachers as related to their practice. Some YL educators consider ICT something useful but largely outside the teachers' purview as a teaching tool (Loveless, 2003). Mama and Hennessy's (2013) Greek Cypriot participants differed in their stated and enacted beliefs about educational ICT, with self-reported enthusiastic ICT users not displaying these in their practice. It should be noted that a major limitation of the study was the brief observation time for each teacher (2.5 lessons each), unaccompanied by document review.

In short, the literature on ICT-related cognitions and praxis among schoolteachers is abundant, albeit conflicting. In the next section, I explore literature on higher education (HE) instructors.

3.2.3 Pedagogical Cognitions and ICT Use among Higher Education Instructors

Numerous recent studies have delved into the ICT-related cognitions and practices of HE instructors. Wang and Wang (2009) found that perceived ease of use (EE in the UTAUT) did not significantly affect intention to use web-based learning systems, but that perceived usefulness (PE) did. In other words, as was the case with Petko's (2012) study of secondary school teachers, instructors did not choose to use e-learning simply because they thought it would be simple to use. These results are supported in another study (Motaghian, Hassanzadeh, & Karimzadgan Moghadam, 2013) of 115 instructors at two technology universities in Iran. It was found that perceived usefulness was the biggest factor influencing instructors' intentions to use and actual adoption of web-based learning systems. It should be noted, however, that in these studies actual adoption was intuited only through surveys about intentions, with no actual observed behaviours. I have aimed to address this drawback through this thesis.

Another subset of educators germane to this study is EL educators. I review the literature on their ICT use below.

3.2.4 Pedagogical Cognitions and ICT Use among English Language Educators

EL teachers are a "disparate and diverse professional group" in terms of the varied backgrounds they bring to the field (Elliott, 2009 p. 432). As was the case for some of the participants in the present study, many expatriate, "border-crossing" (Amobi, 2004) EL educators join the profession without having followed the traditional path of a four-year teaching degree in education (Morgan, 2015). These teachers may gain their practical professional knowledge on the job first and through formal training courses later. As such, and as EL teacher expertise varies widely, no matter the years in service (Farrell, 2013), they may have developed their pedagogical ICT uses on their own. Even in educational contexts where university degrees are required for employment, EL teachers may not receive the same professional development opportunities as other educators even within the same institution (Breshears, 2009).

Because of the varied backgrounds and contexts of EL educators, caution should be taken in applying the findings from studies in the literature. Nevertheless, the handful of recent published studies available on ICT use among EL educators does provide some insights into the cognitions and behaviours of this select subset of educators.

Some studies have linked adoption and affective factors to training. For example, Rahimi and Yadollahi (2011) found older teachers and teachers with longer teaching careers reported higher rates of anxiety and were less likely to use ICT in the classroom. The researchers attributed this to a lack of training in new technologies, echoing Rosen and Maguire's (1990) assertion that teaching experience does not reduce computer anxiety. Chen (2008) found that Taiwanese EL teachers who had received ample training in using technologies were more inclined to employ web-based instructional practices, but that teachers were uncertain of the skills they needed. Hu and McGrath (2011) found that limited technology and pedagogical skills among Chinese university instructors were hampering enthusiasm and efforts to implement ICT reforms.

Aydin's (2013) survey (based on Papanastasiou & Angeli, 2008) found that Turkish EL teachers reported having the requisite knowledge to use email, the Internet, presentation software, and word processing programs, and were confident in their ability to troubleshoot on computers in the classroom but felt less assured in leading students to do online activities such as creating webpages.

Other studies have identified a contrast in e-learning factors deemed important by ELT program administrators (research, hardware and software procuration, training and student preparation, marketing and funding) versus those perceived as important by faculty (technical and instructional support). Both parties deemed collaboration to be important (Coryell & Chlup, 2008).

In short, it is evident that despite the specific differences of their context to other educators, the ICT-related frustrations and worries experienced by EL educators

cross boundaries. In the next section, I review studies on the group of educators central to this study: trainers and teacher educators themselves.

3.2.5 Caring Professionals: Pedagogical Cognitions and ICT Use Among Nurse Educators

Although the focus of this thesis is specifically on TEs, the literature on ICT-related training practices and cognitions in another caring profession, nurse education, can provide useful insights. Koch's (2014) review of e-learning studies for nursing educators concluded that the majority of studies were expert opinion-based rather than empirical and that the challenges of online teaching went beyond technical skills. Petit-dit-Dariel, Wharrad, and Windle's (2014) Bourdieuvian case study of nurse educators found the *habitus* of participants factored into whether or not they made time to pick up new ICT skills. However, the participants perceived their institute as valuing research capital over teaching.

3.2.6 Pedagogical Cognitions and ICT Use Among Teacher Educators

While a review of TE-focused studies is desirable, empirical studies on ICT in education typically have focused only on training program implementation (Jung, 2005) or on the perceptions and experiences of trainees and not trainers (e.g. Hammond et al., 2009).

There are a few notable exceptions. In a key study, Drent and Meelissen (2008) discovered that despite government encouragement, available hardware and software, and positive attitudes, TEs in the Netherlands used ICT little in their pedagogical practice. The researchers found a strong bi-directional relationship between a student-oriented teaching approach and the innovative use of ICT. In addition, while ICT competence was deemed a necessary pre-condition for adoption, it was not the decisive factor influencing TEs' use of ICT.

Yang (2012) probed the ICT-related teacher cognitions of eight PGCE TEs at a British university. It was found that their views of the pedagogical uses of ICT related strongly to their opinions of the tensions within each of their subject areas; for

example, communicative and grammatical approaches to language learning in the case of the language education tutor.

Hammond (2011) compared the espoused pedagogical beliefs of fifteen members (aged 50 or above) of the UK's Association for Information Technology in Teacher Education to their publications and conference work. He discovered that many participants espoused constructivist epistemologies and were dissatisfied with the bounds of schooling, envisioning a more experiential learning curriculum encompassing ICT. He also found that participants did not simply project their views onto technologies or vice versa; context could trigger uses.

TEs' cognitions about their roles have also been explored (Rodriguez-Arroyo & Loewenstein, 2013). The tensions for TEs between a 'sage on the stage' instructive role versus a 'guide on the side' facilitative and constructivist style are highlighted in 21st-century technology-driven programs (Jarvis, 2015; Molle, 2013). Prestridge (2010) explored the aspect of collegial dialogue present on an online discussion board for INSET on developing teachers' awareness of and skills in integrating 21st-century methods. An interesting dilemma she mentioned is when to use her "'expert' standing to direct the discussion to pedagogical issues" (p. 254) and when leadership should "[devolve] into the community" (p. 255).

Other scholars have looked specifically at the ICT courses in PRESET programs, which typically present and demonstrate educational technology theories and methods. While the emphasis in such studies is often on the program as a whole or on perceptions and practices of the teacher candidates and not of the TEs, I have inferred some of the decision-making through an analysis of these reports. Tondeur, van Braak, Sang, Voogt, Fisser, and Ottenbreit-Leftwich (2012)'s meta-ethnography on PRESET programs and TEs highlighted TEs' roles: as models, learners, collaborators, feedback providers, and as scaffolders of authentic experience. Institutional-level conditions found to be important were planning and leadership of technology, intra- and inter-institutional cooperation, staff training, systematic and systemic change efforts, and access to resources.

Data from 111 TEs (Goktas, Yildirim, & Yildirim, 2008) indicated a perception among them that trainees should take the general computer course before their methods course to build an applicable ICT knowledge base. However, I also noticed that while many of the study's TE participants espoused a belief in making assignments relevant to trainees' future classrooms, trainee responses indicated that their courses themselves were teacher-centred and overly theoretical. It would therefore seem that these ICT educators were espousing student-centred teaching beliefs but enacting teacher-centred ICT-related use behaviours.

TE thinking was briefly acknowledged in Graham, Borup, and Smith's (2012) study on decision-making and TPACK among elementary school PRESET candidates. They noted that since 2002, "professors and administrators have tried to move the course away from productivity-oriented course projects….to instruction and projects that use technology to enhance pedagogies and facilitate teaching core content standards" (p. 534). It was also found that projects were designed to lessen the burden of decision-making among trainees through scaffolding within the assignments.

In her investigation of the blog reflections of a Swedish blended learning PRESET program, Granberg (2010) described the purpose of incorporating blogging within the first semester with the long-term aim to "provide students with a tool for individual reflection using text, pictures, and video, and which would accompany them throughout their teacher training" (p. 349). Hramiak (2010) briefly mentioned her role as a TE in deciding on the appropriate blend of face-to-face and online activity and in establishing trust with students before the course went online. She also pointed to the modelling role of the TE in tension with her decision to try to stay off the discussion boards in order to allow the student teachers to better develop their presence. This followed Arnold and Ducate (2006) who found TEs refrained from commenting on an online forum in a PRESET course, acting instead as discussion facilitators through the posing of questions.

Gill and Dagarno (2008) revealed that teacher candidates were computer-literate and positive about ICT purposes, but had low self-efficacy on pedagogical ICT uses, a finding echoed in Zhou, Zhang, and Li (2011). In the latter study, it was notable that only 35% had access to a computer at home, and only 30% had their own computer. A drawback of the study was that some questions failed to distinguish between teaching and learning.

Other studies have noted discrepancies between theory and practice in programs. Clarke's (2013) review of VLE-related articles in the journal *Technology, Pedagogy, and Education* revealed a shift from 'primitive' technologies to reliable and flexible ones, and a trend toward more collaboration-based theories mentioned to support praxis. Nevertheless, Clarke found little evidence of "substantial changes in pedagogy" (p. 121) since 1992. Zhang and Martinovic (2008) and Martinovic and Zhang (2012) discovered that despite pre-service teachers' positive attitudes to ICT for learning and teaching, the program failed to enable graduates to use the ICT for pedagogical purposes capably within a classroom.

Nevertheless, most studies of ICT uses in PRESET courses have ignored the TEs involved, despite the fact that these professionals' decisions were likely to influence the learning of teacher candidates. Jang (2008) compared outcomes and perceptions of teacher trainees in face-to-face instruction with an experimental group participating in face-to-face plus asynchronous online activities. Jang's conclusion that the experimental group shared ideas more freely because of the online environment raises the question of which methods the TE herself was using in the 'traditional' face-to-face control group to engender discussion and sharing among participants in the first place. Notably, the article makes no reference to the TE and the researcher being the same person (confirmed in a subsequent email communication, July 9, 2014). Similarly, Chai and Lim (2011)'s theoretical review of ICT courses in PRESET programs pointed to a lack of agency inhibiting teacher candidates' transition toward more constructivist uses of ICT in their practice, but failed to mention the TEs.

As for South Korean government-run PRESET programs, pedagogical applications of ICT have generally been addressed through specialized courses that are electives and non-systematically applied (Kim, Jung, & Lee, 2008). H. Kim (2011, 2013) found that while most PRESET students in an ICT program developed their ideas about critical pedagogical uses of technology throughout the course, some maintained their belief that technology is a supplement to teaching and learning. He concluded that one semester was insufficient to alter pre-service teachers' beliefs about ICT integration in education. Yet we get no indication of Kim's beliefs in designing and teaching the course; I found through emails that the researcher was also the course instructor (Email, August, 2014).

The literature suggests both the importance of educators' cognitions in pedagogical technology integration and an influence from ICT-related teacher training experiences (or lack thereof) in defining these cognitions. It follows that as key agents within teacher training contexts, TEs could play a vital role in the shaping of these training experiences. In the following section, I synthesize studies of practices in using ICT in L2 teacher training programs.

3.2.7 ICT-related Cognitions in L2 PRESET Programs

One of the aims of this thesis is to rectify the gap in the literature of empirical studies on TESOL-TEs. As with the literature for general PRESET programs, the majority of published studies on L2 teacher education programs fail to acknowledge the roles and cognitions of TEs. One reason for this may be because the researchers are investigating their own students (as I determined in some cases through subsequent emails) and choose not to focus on their lens inward (Loughran, 2007; Wright, 2010). These studies allow a limited inference of teacher education cognition.

In one case, for example, D. Kim (2011) found that "preparing teachers to use various instructional strategies is crucial" and that blogs can be a "unique, innovative tool to enhance the development of student reflectivity" (p. 634). She also claimed that the "mastery" achieved by TESOL trainees by participating directly

in an assignment, the learning would be “transferable to their future teaching” (p. 635). Unlike other research on ICT-specific courses, Kim’s studies reflect the views of an instructor-researcher incorporating student-centred web-based activities into an ELT literacy course. She also modeled some of the practices through her own creation of a Google site to host the podcasts and blogs. However, while support for the activities is evident from teacher candidates’ glowing comments about their learning, Kim’s claim that learned activities would be borne out in the future teachers’ classrooms are unsupported given the scope of the research.

Other studies noted the important role of authentic experience. Jauregi, De Graaff, and van den Bergh (2012) concluded that Dutch EL teacher candidates were able to “critically appreciate the challenges and opportunities of ICT-enabled networked language learning environments” (p. 120) through hands-on experience.

Hall and Knox (2009) detected perceived isolation not only among the students in distance courses, but among their TEs. Online TEs also perceived an extra workload in keeping up with emails and questions from students, including questions that would normally be addressed to administrators in face-to-face programs.

3.2.8 Studies on South Korean In-service Teachers and ICT Integration

ICT INSET in South Korea has been found to be non-systematic and lacking in components deemed necessary by teachers, such as how to deal with privacy breaches (Kim, Jung, and Lee, 2008). An interesting finding from Baek, Jung, and Kim (2008) was that “using the enhanced functions of technology” (p. 232) was the least cited factor in a survey of in-service teachers’ reasons to incorporate ICT into instruction, despite this being emphasized by the MOE as a key reason to promote educational technologies. However, the lack of observations or interviews deprived the study of depth, while the study’s failure to define ‘technology’ makes it difficult to ascertain whether all teachers had the same idea of what technology would entail when they responded. Park and Son (2009) surveyed and interviewed twelve South Korean in-service EL teachers on their beliefs about CALL. Most of the participants used basic computer functions in the classroom, and saw benefits of

CALL for ELT. However, the majority depended heavily on the MOE-issued CD-ROMs, and said they felt they had limited resources, time, and knowledge to implement more. A shortcoming of the study was the limited amount of time (15 minutes each) for interviews.

Lee, Yoon, and Lee (2009) used a TAM-based questionnaire to explore acceptance of online learning among 250 university students in South Korea. Although the research focused on student perspectives, a key finding related to instructors. They found a high correlation between perceived quality in instructor characteristics and perceived usefulness (and, subsequently, intention to use) of e-learning from students' perspectives, echoing Selim's (2007) finding that instructor quality is a crucial factor in positive e-learning experiences.

Webster and Son (2015) looked at the ICT-related cognitions and practices of EL instructors at a university in Seoul. They found that Rogers' (2003) Diffusion of Innovations theory lacked the nuance to explain technology adoption related to individual needs and opted, instead, on a 'what works' grounded theory based on SIs and institutional constraints. One drawback of the study was the inclusion of a potential confound in the data along position/cultural lines as both part-time Korean instructors and full-time non-Korean instructors participated.

3.4 A Caveat About ICT Availability

TE cognition and ICT-integration must be analysed within the context of technological availability. Albirini (2006) found that a lack of ICT resources was at the heart of low technology uptake in Syrian schools. Ada's (2013) take on ICT in Nigerian teacher training stressed the need for collaborating with more resourced partners to gain both ICT infrastructure and skills. A Flemish collaboration on TPACK-modelled pedagogical training with Cambodia's teacher training arm, for example, encountered problems such as limited computers and frequent power blackouts (Dionys, 2012). In another study, 1165 public school teachers in Greece were surveyed immediately after completing in-service training on ICT for the classroom (Jimoyiannis & Komis, 2007). Multivariate analysis revealed that most

teachers held overall positive views about ICT, but were wary of using ICT in instruction as they believed that technology isolated people from social interaction. Very few of the teachers reported using ICT for personal purposes and only 1% of female teachers and 2.6% of male teachers reported using ICT as a learning tool. A close reading of the study revealed that at the time the data were collected (2002-2003) only about a third of teachers had an Internet connection at home, with only 57.4 of females and 60.4 of men owning a PC.

It is clear that much of the published scholarly work on ICT-related cognitions and pedagogical practices fails to mention ICT availability in the wider societal context of the study, thus providing the skewed view that broadband is everywhere (Murray, 2013). The figures from the Greek paper above, for example, contrast highly with the availability of smart devices and computers for TEs in South Korea in 2013.

3.5 Role of Teacher Educators

3.5.1 Teacher Educators as Models

Studies on TEs have pointed to the crucial role of modelling in working with pre-service teachers, both in terms of developing future teachers professionally (Aleccia, 2011; Gallagher et al, 2011; Lunenberg, Korthagen, & Swennen, 2007; Wood, & Geddis, 1999) and in improving the teacher educators' own teaching techniques (Korthagen, 2002; Loughran, 2002, Lunenberg, Korthagen, & Swennen, 2007; Russell & Berry, 2011; Wideen, Mayor-Smith, & Moon, 1998). If they fail to both "walk the professional talk" (Aleccia, 2011, p. 90) and 'preach what they teach' (Swennen, Lunenberg, & Korthagen, 2008) in their pedagogical practice, TEs cannot bridge the theory-praxis gap and are limiting opportunities for teacher trainees' decision-making (Clandinin, 2008).

Lunenberg et al. (2007) asserted that TEs needed to include both implicit and, more importantly, explicit role modelling of "new visions of learning" (p. 589) when working with future teachers, and were scathing in their critique of the lack of such modelling in current practice in the Netherlands. They found that even experienced

TEs failed to adequately 'think aloud' and explain their pedagogical choices, and were not connecting academic theory to exemplary behaviour.

Gaps have also been highlighted between espoused and enacted beliefs. Tillema and Kremer-Hayon (2002, 2005) found that TEs in Israel and the Netherlands viewed a type of self-regulated learning and self-inquiry as intrinsic to their professional roles. However, the researchers also noted that these TEs, and especially the ones in the Dutch context, often failed to use the principles of self-regulated learning with their teacher trainees, taking on a "prescriptive stance" instead (2002, p. 601).

The vital role of giving feedback has also been brought to light. Imhof and Picard (2009) found mixed responses from German PRESET TEs on the perceived usefulness of portfolios as a reflective tool. Constructive feedback on the portfolios was deemed necessary but overly time-consuming.

3.5.3 Studies on Teacher Educator Preparation

Researchers have described the processes of preparation for TEs as sparse and ad hoc. This has been found to be the case in a variety of settings, such as Canada (Grierson, 2010), Greece (Karagiorgi & Nicolaidau, 2013), Namibia (O'Sullivan, 2002), the UK (Murray & Male, 2005), the US (Wilson, 1990; Zeichner, 2005), South Africa (Robinson & McMillan, 2006) and Uganda (O'Sullivan, 2010). Martinez (2008) lists six major transition challenges for new TEs: 1) transitioning from teaching children to adults; 2) getting used to autonomy; 3) adapting to new institutional structures and size; 4) a new work environment, including new technology; 5) the 'modelling imperative'; and 6) a new research and promotion culture. She asserts that TEs receive little aid in preparing for and adjusting to these challenges.

Murray and Male (2005) found that induction processes for new TEs at universities in the UK varied widely and had little structure, with novices simply relying on their own experience as teachers to figure out how to train teacher candidates. In the US, science TEs were found to lack a pedagogical training component in their doctoral

programs (Abell, 1997). Zeichner (2005) revealed that teaching experience did not indicate good mentoring skills, and that there is often little help or professional development provided for TEs to learn how to work with novice teachers. He asserted that self-study and immersion in the field of teacher education were a "basic requirement for learning to becoming a teaching educator" (p. 122), decrying the "sloppy behaviour" (p. 123) inherent in running teacher education programs without incorporating prior research on training. This was reiterated in Jones's (2006) UK analysis, Patrizio, Ballock, and McNary's (2011) US-based self-study, and Grierson's (2010) Canada-based self-study of her journey from a "confident school-board resource teacher to an uncertain TE" (p. 3). Karagiorgi and Nicolaidau's (2013) semi-structured interviews with six Greek Cypriot TEs revealed how they had received no particular training to teach adult learners and how all but one considered themselves schoolteachers rather than teachers of teachers or researchers. Robinson and McMillan's (2006) study found that TEs in South Africa lacked any formal preparation for their role.

Investigators have also looked at discrepancies between the stated goals of teacher education programs and their outcomes. O'Sullivan's (2002, in O'Sullivan, 2010) research on TEs in Namibia identified teacher-centred, rote-learning lecture methods used to train primary school teacher candidates to use student-centred methods. Similarly, O'Sullivan's (2010) analysis of syllabi from the Diploma for TEs in Uganda revealed little emphasis on pedagogy and a focus on grammar-focused subject knowledge. Her overall review found that only 3% of the curriculum content focused on how to train student teachers to teach (p. 381). Nevertheless, some TE programs do emphasize the importance of practice and pedagogical modelling in training, such as a master's program to build a cadre of TEs in Pakistan (Khamis & Sammons, 2004).

3.5.4 Studies on the Professional Knowledge and Development of Teacher Educators

Once TEs are in their working roles, how their professional cognitions develop is also of concern. While research in this area remains sparse, a growing collection of

studies has explored how TEs find avenues for growth and cognition change within their practice.

Some researchers have noted the isolation of TEs in larger institutions. Gallagher, Griffin, Ciuffettelli Parker, Kitchen, and Figg (2011) documented how their self-study group of pre-tenure TEs at a Canadian university helped them tackle emotional issues related to balancing entry into the academy with teaching responsibilities. Hadar and Brody (2010) revealed that Israeli TEs who joined a year-long professional development community felt isolated from others in the department and rarely conversed with colleagues about teaching.

A selection of studies has explored perceived roles of TEs. Six UK TEs thought their duty of being models in reorienting teacher candidate thinking was more crucial than their role as teachers of techniques and practical skills (John, 2002). Interestingly, while the TEs praised research as a way of informing practice for trainees "they themselves rarely consulted the growing corpus of work now available on the professional learning of student teachers" (p. 339).

Both this role modelling aspect of TEs' perceived roles, known as the "be like me" phenomenon (Egan, 1978 in Lunenberg & Korthagen, 2003, p. 31) and the role of promoting critical thinking were flagged by Lunenberg and Korthagen (2003) in their investigation into the cognitions and practices of five TEs in the Netherlands. They found if TEs' views of their trainees matched trainees' self-perceptions they shifted to more student-centred instruction. Another key conclusion was that because none of the five TEs provided systematic explanations of their pedagogical and didactical choices, they limited their effectiveness in promoting changes in cognitions and beliefs among their trainees.

Much of the literature on TEs has touched on on-the-job professional learning. In their analysis of ICT student teachers' narratives in a study on paper-based versus digital-based diaries, Gleaves, Walker, and Grey (2008) reported that "reading individual diary entries, complex pictures of the students as struggling to make

sense of what we, as tutors, considered minor interactions, sometimes led to deep-seated questioning of how best to improve their work" (p. 221); Gleaves and Walker (2010) noted that ubiquitous computing could help TEs understand what teacher candidates were experiencing in the field. In researching how professionals become experts, Hashim and Ahmad (2013)'s retrospective interviews explored the CPD of four Malaysia 'expert' TEs. While formal development opportunities were also found important, it was the participants' internal drive for continual learning that had seemingly led to their expertise. Karagiorgi and Nicolaidau (2013)'s six TEs in a Greek-Cypriot context reiterated the need for internal drive to develop professionally and to network with peers, given the meagre formal opportunities for CPD and the little to no feedback given on their praxis other than brief course evaluations from students. As one participant glibly quipped, "No one cares about my development" (p. 10). Patrizio et al. (2011) found that in an absence of formal mentorship for novice TEs at a US university, structured collaborative self-study through sharing readings, viewing student work, dialoguing, and partaking in group self-assessment aided them in reflecting on practice and exploring their own cognitions. The issue of having a collegial 'sounding board' to develop appeared in Schuck and Russell's (2006) self-study of their teacher education cognitions and practices in Canada and Australia. They found that forming a "critical friendship" allowed them to "reconsider aims and purposes of practice and create the space and opportunity for such thought to flourish" (2006, p. 113).

3.5.5 The Professional Knowledge of TESOL Teacher Educators

The pedagogic vision of TEs and self-view of their roles often extends beyond simple content knowledge (Vanassche & Kelchtermans, 2014). Kani's (2014) qualitative study looked at the professionalism of eleven TESOL-TEs in six different countries. He found that while they reported that a strong knowledge base mattered, also important were commitment to a service ethic, professional autonomy, and a sense of moral purpose.

In a training model proposal for TESOL-TEs at the Turkish Air Force Academy Er, Ülgü, and Sarı (2013, p. 48) indicated that the status of being 'distinguished' and

'emeritus' teachers according to Steffy and Wolfe's (2001) professional cycles sufficed as hiring qualifications for TEs, with no indication that TEs would have received any training in work of how to train and develop others.

Golombek and Doran (2014) looked at TESOL-TEs at a US university responding to trainees' emotions within journals. They noted the importance of taking into account emotional statements in order to guide development for teacher learners.

Muthanna and Karaman (2014) interviewed three TESOL-TEs in Yemen. The participants reported that they considered student-centred education important, but felt that their TE colleagues were untrained in using learner-centred methodology and continued to use traditional teacher-centred methods. The participants also stated that technology facilities such as language laboratories were needed to meet the program goals of the university's TESOL program.

Cabaroglu and Tillema (2011) used open and structured interviews, observations, and responses to presented dilemmas to investigate the dilemmas faced by 12 TESOL-TEs in Turkey, which they then contrasted with data sets of TEs in Israel and the Netherlands. They found similar dilemmas faced by TESOL-TEs (e.g. the use of the mother tongue in the classroom). Dilemmas around integrating new media into teaching were found across all contexts.

3.5.6 The Cognitions of Teacher Educators in South Korea

The research on the perceptions of TEs in South Korea is sparse, with most research focused on Korean TEs at national universities of education.

In a key mixed methods study on the ecological context of PRESET teacher education in Korea, Hwang (2014) interviewed and surveyed 21 Korean TEs at three elementary education institutions. She then administered a questionnaire to 39 TEs at Korea's thirteen teacher education institutions, and finally analyzed data from 164 completed online questionnaires. One of her key findings was that TEs' prevailing concerns were research-related, including their perceived need for more

financial support and research assistants. Hwang attributed this in part to higher education performance-based salary and promotional assessments based heavily on research production. It was also found TEs preferred conferences for professional learning rather than collaboration with colleagues.

3.6 Teachers' Educational Technology Acceptance: Studies Applying the Unified Theory of Acceptance and Use of Technology

Pynoo et al.'s (2011) quantitative study employed UTAUT-based questionnaires and user logs to study Belgian secondary school teachers' LMS-related attitudes. While most of the teachers had a positive attitude regarding ease of use and usefulness, SI from administrators and PE constituted the biggest predictors of actual use of the LMS. It should be noted that in the case of the investigated school, the new LMS partially supplanted the school's prior online bulletin board, making the function now mandatory. However, while it was found that the principal strongly encouraged use of the LMS, the study makes no mention of any teacher training in the use of the website. A drawback of this study was the fluctuating response rate to the three rounds of questionnaires, with only 43 respondents at T2.

In higher education, Tan (2013) used the UTAUT to investigate Taiwanese college students' attitudes towards an electronic placement test. He found PE, EE and SI all exerted a positive effect on behavioural intention. However, the study did not mention whether students had been actually using e-placement tests.

Göğüş, Nistor, and Lerche (2012) added the dimension of professional cultures to the UTAUT by looking at 1723 Turkish STEM and non-STEM educational technology users and across regional lines in Turkey. They found that computer anxiety and computer literacy were strong indicators that should be highlighted as facilitating factors in intentions to use ICT in education. In Nistor, Göğüş, and Lerche (2012), they found that intention to use had an extremely weak effect on actual use.

Teo (2011) compiled from the TAM, UTAUT, and TPB the constructs of behavioural

intention to use, attitude towards use, perceived usefulness, and perceived ease of use to test a model of teachers' technology acceptance for 592 teachers at 60 different schools in Singapore. He found that, consistent with other studies (Davis et al, 1989; Venkatesh et al, 2003) perceived usefulness, attitude towards use, and facilitating conditions had direct influences on behavioural intention to use technology. However, the precise facilitating conditions were left unclear. The present study aims to clarify information related to this construct.

3.7 L2 Educators: Cognitions and Practices

Chai, Chin, Koh, and Tan (2013) investigated the TPACK of 349 Singaporean in-service primary and secondary school teachers of Chinese, using an adapted TPACK survey specifically designed to look at CALL features of TPACK. They found that teachers' constructivist teaching beliefs correlated highly with TPACK constructs and higher use of technologies. However, training for Web 2.0 use was lower than that of simpler technologies such as electronic dictionary use, seen as necessary for high-stakes exam preparation. The conclusion drawn was that TEs needed to improve TPACK in order to model constructivist pedagogies still within a framework of test preparation.

While countless studies have compared EL teachers' beliefs about language learning with the beliefs of their students (e.g.: K.J. Kim, 2006), an emphasis of studies comparing foreign language teachers' instructional beliefs and their practices has primarily surfaced within the last decade. This has led to a growing body of research reflecting secondary or tertiary educational settings around the world.

To investigate the cognitions and practices of Iranian university instructors of ELT, Mellati, Fatemi, and Motallebzadeh (2013) compared results of teacher belief questionnaires and student satisfaction surveys, following up with interviews. A positive correlation was found between the instructors' beliefs and their practices; however, the use of a survey of students' perceptions as a proxy for observations or document review weakens the findings of this study. Interestingly, instructors claimed that even at the post-secondary level, the parents of the students

influenced their decisions to veer toward more traditional methods, showing that contextual factors can extend well beyond the confines of the classroom.

Teachers' own understandings of contexts matter for research. In investigating contextual factors influencing the grammatical pedagogical content knowledge of two experienced NNEST Argentinian EFL secondary teachers, Santiago Sanchez and Borg (2014) noted that "teacher constructed context" (p. 52)—teachers' differing perceptions of the same students-- affected their pedagogical decisions.
Li and Walsh (2011)'s qualitative case study revealed both alignment and dissonance in the espoused and enacted beliefs of two secondary school EFL teachers in China. The researchers surmised that one teacher's understanding of the nature of "oral interaction" may have been key to understanding his beliefs, and argued that "stated beliefs can only be interpreted in relation to specific contexts and specific pedagogic goals (2011, p. 51).

3.8 Cognitions and Practices of English Language Instructors in South Korea: In-Depth Qualitative Studies

Several recent in-depth studies have been conducted on South Korean educators. E. Kim (2008)'s case study of a South Korean middle school teacher found that neither cognitions nor practice seemed to have been affected by the multiple teacher development opportunities in which the teacher had engaged over her eighteen years of teaching.

Jones's (2011) seven-week investigation of the follow-up moves of three English-L1 EFL instructors at a South Korean university found discrepancies between instructors' practices and SLA-related beliefs. In my view, the study used an overly strict definition of CLT in which any sort of repetition was labeled behaviourism. However, an interesting aspect of the comparisons among the instructors' espoused beliefs and their actions was their frequent inability to notice that what they thought they were doing differed from their behaviours. For example, one instructor claimed to make decisions to maximize student-talking time, but in her

recorded interactions, spoke more than her students. Notably, an unexplored aspect in the study was the teacher training background of the teachers, one of whom had no formal L2 teacher education.

3.9 Summary of the Findings from the Literaturereas

In this review of the literature, I have focused on studies of the 21st-century technology-related cognitions and practices of educators in general and of TESOL-TEs in particular. In doing so, I have investigated the interplay of perceived roles and cognitions with practices. While some studies have found connections between espoused and enacted beliefs, others continue to find discrepancies.

I have also explored the emphasis on constructivist beliefs and teaching styles, and on barriers rather than affordances, in descriptions of pedagogical ICT uses. I have shown the scarcity of extant literature on TESOL-TEs' own cognitions, noting that their decision-making must be gleaned indirectly from studies on programs. Furthermore, the few education-related UTAUT studies have failed to elucidate details on the facilitating conditions that mediated intentions to adopt technologies among educators.

More crucially, aside from studies on TE-academics, recent published studies on the ICT-related cognitions and practices of TEs in South Korea are virtually non-existent. In the light of this gap, and given the peculiar conditions of South Korea as both a world leader in ICT and as a consumer of EL education, the findings from the current thesis are especially important.

In the next chapter, I describe my methodology in pursuing answers to the questions of how and why TEs in South Korea integrate 21st-century technologies into their pedagogical practice.

CHAPTER 4 METHODOLOGY

4.1 Chapter 4 Overview

Dunne, Pryor, and Yates (2005) point out that "the research process, virtually universally, begins with a concept and ends with a text. The space in between is normally given shape and coherence by decisions we make about how to proceed…" (p. 11). The key concepts underlining this study are: to gain deep insights into the educational and pedagogical cognitions and practices of TESOL-TEs in regards to the integration of 21st-century digital technologies in their practice, and to investigate the factors that may influence the intentions of these TEs in the process of integrating these technologies. In this chapter, I focus on the 'space between' the concept and the final text. I detail the choices of empirical research methods and fieldwork techniques I employed in the study, drawing on relevant methodological literature. In addition to explaining my options and choices for data collection, I outline the rationale for a qualitative approach and for a case study in particular. I also explain my sampling approach, questionnaires, interview content, protocols, and my techniques for data analysis, with a description of the specific contextual and methodological issues raised by this study.

4.2 The Research Design

Creswell (2012, p. 5) lists three key questions that underline the design of research, pertaining to 1) the knowledge claims of the researcher, 2) the strategies of inquiry that will inform the procedures, and 3) the methods of data collection and analysis that will be used. According to Hammersley and Atkinson (1983, p. 28), "research design should be a reflexive process operating through every stage of a project." Yin (1989, p. 29, in DeVaus 2001, p. 9), asserts that research design "deals with a logical problem and not a logistical problem." For my reflexive process of investigating the logical problems of how and why TESOL-TEs are integrating digital technologies into their practice, I have adopted a multiple, instrumental case study approach.

4.2.1 What is a Case Study?

Case studies defy simple categorization (Easton, 2010), and Stake (1994,) claims that that "perhaps a majority of researchers doing case studies call their work by some other name" (p. 236). One common characteristic is the case study sampling mode: a sample of one (Merriam, 1998; Easton, 2010). A case study is a "detailed examination of one setting, or a single subject, a single depository of documents, or one particular event" (Bogdan & Biklen, 2003, p. 54). Hancock and Algozzine (2006, p. 9) note that case studies are "intensive analyses and descriptions of a single unit or system bounded by space and time." For Hatch (2002, in Hancock & Algozzine, 2006, p. 15-16), the bounded case is the unit of the study, while a phenomenon is often at the centre of an investigated focus. In the present study, the phenomenon investigated refers to the cognitions and practices of the participants. In a case study, the phenomenon is studied within its natural context (e.g.: CU's TESOL program). Moreover, case studies are richly descriptive, because they are established through "deep and varied sources of information" (Hatch, 2002, in Hancock & Algozzine, 2006, p. 16). The present study aims to be highly illustrative.

4.2.2 The Rationale for a Case Study Method

Understanding researched phenomena relies on proper selection when choosing a case (Yin, 1989). Three heuristics guide case selection (Stake, 1994): intrinsic, instrumental, and collective (or, as Yin, 2009 calls it, 'multiple'). A case in an instrumental case study is selected to glean insights into a particular issue or to refine a theory. Here, the case "plays a supportive role, facilitating our understanding of something else" (p. 237). A multiple case study (Yin, 2009), groups instrumental case studies to gain understanding from multiple perspectives.

In this study, the narrowness of case research and the opportunities for thick description (Denzin, 1978, in Mathison, 1988; Gomm et al., 2000) offered in case reports allowed an in-depth focus on what- and how- type questions (Gillham, 2000) about TEs' cognitions, along with the prospect of unlocking insights into why participants may have made their choices, within their own specific, real-world context (Yin, 2009). My aim was to provide data and transferable insights within a

complex setting where there is little control over behaviour, organization, or events (Anderson et al., 2005). While inquiry modes such as phenomenology, autoethnography, and biography also provide opportunities for in-depth exploration, the focus on a 'bounded case' (Creswell, 2012)—also known as "a single entity" (Merriam, 1998, p. 27) or "a functioning specific" (Stake, 1994, p. 236)—allows an exemplar from which to draw transferable conclusions. I intended to explore the teaching and inner lives of each participant (Silverman, 2013) in depth and make holistic inferences regarding relationships among participants' own cognitions and practices and influences within their own setting (Stake, 2000). It was hoped that this would generate for participants, readers, and myself an "empathetic understanding" (Gomm et al. 2000, p. 6) of the issues under investigation.

4.2.3 A Qualitative Approach to Case Study

Qualitative research offers a "dizzying array of traditions and possibilities" (Wright, 2003, in Lincoln & Denzin, 2003, p. 12), but with the shared goal of understanding participants from participant perspectives (Bogdan and Biklen, 2007, p 26). By providing "insights that statistics and numbers might not yield," qualitative research offered me in-depth context examination to provide a "clearer understanding of what is happening in certain circumstances" (Lichtman, 2010, p. xiii).

Another benefit of qualitative research is its resonance with practitioners in the way data are reported: narratives have impact (de Costa, 2014; Santiago-Sanchez & Borg, 2015; Snyder 2015). Even my choice of first person singular connects the reader and the reporter while denying the pseudo-objectivity of the passive voice in clinical reports (Goetz, 1988). If a common complaint in educational research is its perceived inaccessibility to educators (Hillage et al., 1998; Tooley & Darby, 1998), an increase in publishing of outstanding qualitative research is desirable.

4.2.4 Individuals as the Unit of Analysis

To understand the delimitations of the bounded case is crucial (Yin, 2009; Stake, 2005). Although I also investigated aspects of the TESOL program in which

participants worked, each participant was considered a bounded case. My reasons for choosing individual participants as the analysis units are manifold. First, and most crucially, the research questions sought to unveil the inner worlds of TESOL-TE thinking (Borg, 2013), transcending the common workplace. Individual educators come with their own rich life histories and experiences (Connelly & Clandinin, 1990) beyond their current places of practice; their concurrent professional experiences and personal learning networks (Richardson & Mancabelli, 2011) connect them to their field and to each other in diverse ways. Moreover, a look at five different unit-participants would permit cross-case analyses, permitting a deep look into decision-making.

4.2.5 Methodological Considerations and Contributions of This Study

This thesis aims to contribute methodologically to the literature. Recent studies incorporating qualitative data on educators' ICT-related cognitions and instructional practices have included quantitative measure surveys with interviews (Park and Son, 2009); self-report questionnaires along with site observations (Beggs et al., 2013); surveys (Kearney, Burden, & Rai, 2015); ANOVA-analysed surveys and interviews (Morsink et al., 2011), or lesson planning and simulated recall (Tseng, Cheng, & Lin, 2011). While these are all useful techniques, none of the studies above contains the kind of thick description that can be garnered from a truly in-depth qualitative case study that focuses more deeply on only a few participants.

Nevertheless, the literature is peppered with a few recent qualitative case studies investigating a limited number of educators' cognitions and practices regarding technology integration. Manfra and Hammond (2008)'s case study of two history teachers included field notes, interviews, focus groups, teachers' handouts, and student work. Analysis included constant-comparative methods and two coders. Khan's (2011) three-semester-long study employed a TPACK framework, used classroom observation notes, a Likert-scale student surveys, and interviews to explore the classroom pedagogies of a university chemistry professor using computer simulations. Khan employed multiple observers and used Glaser and Strauss's (1967) Constant Comparative Method for data analysis. In a South Korean

context, very few studies, aside from Webster and Son (2015) have used interview/observation combinations to provide thick description accounts of educators' cognitions and practices using digital technologies.

While the case studies above contain an encouraging mixture of techniques, they also include some methodological drawbacks. In Manfra and Hammond (2008), the two researchers each observed a different teacher, with limited documentary evidence. In Khan (2011) and Webster and Son (2015), the lack of documentary support constrained observations simply to classroom occurrences, ignoring the larger issues of pre-class preparation.

This thesis adds methodological breadth to research on educators' cognitions and practices regarding technologies by: 1) including written reflections and documentary evidence from TEs' lives beyond the classroom; 2) utilizing Template Analysis techniques (King, 2004), and 3) combining TPACK and UTAUT measures to guide analysis. In doing so, I hope to bridge the gap exposed by Egbert et al. (2009) regarding the lack of educators' voices and contexts being incorporated into research on technological integration in second language learning and teaching contexts.

4.2.6 The Use of Purposive (Criterion) Sampling

All types of research sampling are purposive in some way (LeCompte and Preissle, 1993), and 'criterion sampling' may be the more fitting descriptor. I followed key criteria in selecting initial participants for the study: first, that they were TESOL-TEs in South Korea, and later, that they were TEs teaching in the same selected program. I used a combination sampling method that blended criterion, snowball, and opportunistic sampling (Patton, 1990). Details are described below in "Procedures."

4.3 Reflexivity My Roles and Cognitions as a Researcher

4.31 My Roles and Cognitions as a Researcher

Reflexivity positions researchers in relation to the field, the research, the act of writing, and knowledge production (Berger, 2015). In qualitative research, the "research is only as good as the investigator" (Morse, Barrett, Mayan, Olson, and Spiers, 2002, p. 17), and while in earlier ELT-related publications the voice and positioning of the researcher was frequently absent (Canagarajah, 1996), recent qualitative literature stresses the need to highlight the emic and etic position of the researcher (Norton and Early, 2011). Reciprocity undergirds the sharing of knowledge and experience among researchers and those being researched (Shields and Dervin, 1993).

At the time of collecting and analysing data, my eighteen years in ELT and ten in South Korea, and my Master of Applied Linguistics all influenced the lens through which I observed and processed phenomena. My ontological and epistemological perspectives shaped my study design, including the questions I asked and my methods for data analysis. I delineate these perspectives when I discuss trustworthiness and validity below, but provide below some key assumptions that guided my research view:

1. Participants' own voices matter. To this end, narratives and anecdotes are useful (Griffiths et al., 2014).
2. The focus on auto-narratives in the research on TEs (e.g.: Berry & Kosnick, 2010; Gallagher et al, 2011; Loughran, 2005, 2007; Lovin, Sanchez, Leatham, 2012; William, Ritter, Bullock, 2012) means that more outsider researcher perspectives are needed to bridge gaps in the literature.
3. My professional experience in TESOL in South Korea has revealed that it is often left to individual TEs themselves to figure out technology use. This experience, also demonstrated in the literature (Hwang, 2014; Webster & Son, 2015), shaped the kinds of questions I asked.
4. My status as an expatriate professional in South Korea is likely to have impacted the way I heard narratives.

5. My own concerns about technical competences (Jauregi et al., 2012) in my practice shaped the descriptors I used when observing other practitioners.
6. My experience as a TE and trainer of trainers informed the way I viewed the practices of other TEs.

4.3.2 Researcher-Participant Relationship

Researchers can adopt a range of stances in observations of participants or phenomena (Gold, 1958 in Merriam, 1998): 1) complete participant, 2) participant as observer, 3) observer as participant, and 4) complete observer. Merriam (1998) adds to this list: 5) researcher participant. These stances can change over the course of a study (Denis & Lehoux, 2009; Canagarajah, 1996, Norton & Early, 2011). I began as an outsider observer to the group, having never been employed at CU. However, as I had met two of the study's participants prior to the start of data collection, and was working as a TESOL-TE, I was a field-insider.

Over the course of data collection from August to December 2013, the participants and I developed a cordial relationship. I attempted to talk little about my own life in our limited interview time, as per Gillham's (2000) recommendations. (One participant expressed surprise at learning during our final interview that I was married.) However, I responded to participants' questions, and occasionally discussed my own education-related practices to contextualise questions during interviews. Throughout the analysis stage, my relationship with some of the participants developed further. In the summer of 2014, I served professionally alongside Dr. Cho, and Ben attended a workshop I gave. After the data collection period, I attended a participant's wedding and exchanged birthday greetings with CU TEs.

Participants received no money or large gifts to participate in this study. I brought beverages and small snacks to interviews. I bought two participants inexpensive dinners during evening meetings. During observations, I brought trainees fruit or chocolates to thank them for allowing me to be in the classroom. In our final interviews, I gave participants small gift certificates from a nearby café, worth

10,000 KRW (approximately 6 GBP) each. These tokens were in keeping with local customs for small gifts of appreciations among educators.

4.4 Procedures and Methods of Data Collection

4.4.1 Overview of Data Collection

This study employed multiple qualitative methods to 'collect' data. Though I concur with Lincoln and Guba's (1985) criticism that data are not an entity for researchers to simply add to a collection, I use the standard term 'data collection' in this thesis. In this section, I describe and methodologically reason the steps taken to gain access to participants and ensure informed consent, and the methods used to collect, store, and analyse the data.

Table 1 Research Timeline

Date	Procedures
May-Aug 2013	Set the stage for research, gained access to site and participants, received ethics committee approval
Aug-Dec 2013	Conducted interviews and observations, transcribed interviews, collected documentary evidence, completed first stage rough coding
Jan-May 2014	Coded interviews paragraph by paragraph and line by line to modify template; closely read documentary evidence
May-Aug 2014	Refined template and used it for analysis
Sep '14 – Dec '15	Continued coding process, analysis, and writing of thesis

4.4.2 Preliminary Steps: Access to Participants and Site Entry

I sought participants at a TESOL training program in South Korea, and selected Central University's[1] (CU) TESOL Training Program as the setting for this study due to issues of accessibility, program length, and overall fit to purpose as a non-MOE

[1] All names of participants, programs, and the key participating institution in this dissertation are pseudonyms, chosen by me and approved of by participants. I selected the names of participants based on online lists of the top thirty names for their gender from their country and year of birth.

teacher training university that reliably offered regular runs of its PRESET programs. Since its inception in the late 1990s, CU's TESOL Program had risen in South Korean TESOL circles, and offered a variety of PRESET and INSET courses. I focused solely on the PRESET aspect of their mandate. I worked from an *priori* theoretical framework (Miles and Huberman, 1994) assuming that TEs at a university TESOL program in a large city in South Korea would have access to 21st-century digital technologies and that this access would necessitate decision-making related to their practice as to whether and to what extent they would incorporate these technologies into their instructional work. Nevertheless, I did not select the program based on any prior knowledge of actual technology use within the program.

To gain access to participants, I first approached a colleague with connections to TESOL-TEs. That colleague connected me to one of this study's eventual participants, Ray, a coordinator at CU's TESOL program, whom I had not previously met. After I initiated email contact with Ray, we then spoke informally over the phone in an unstructured interview, at which point I 1) learned about CU's TESOL program, including TE numbers and 2) discussed in broad terms my research concept of exploring TE beliefs and received ideas from Ray as to allowable levels of participation.

Ray, the research gatekeeper, helped gain permission from the program head, Dr. Cho, to conduct an in-depth case-study by an outside researcher and distributed to his colleagues the Participant Information Sheet (Appendix D) in late May 2013. In his Google+ online communications, Ray framed volunteering for the study as 'helping out a doctoral student'.

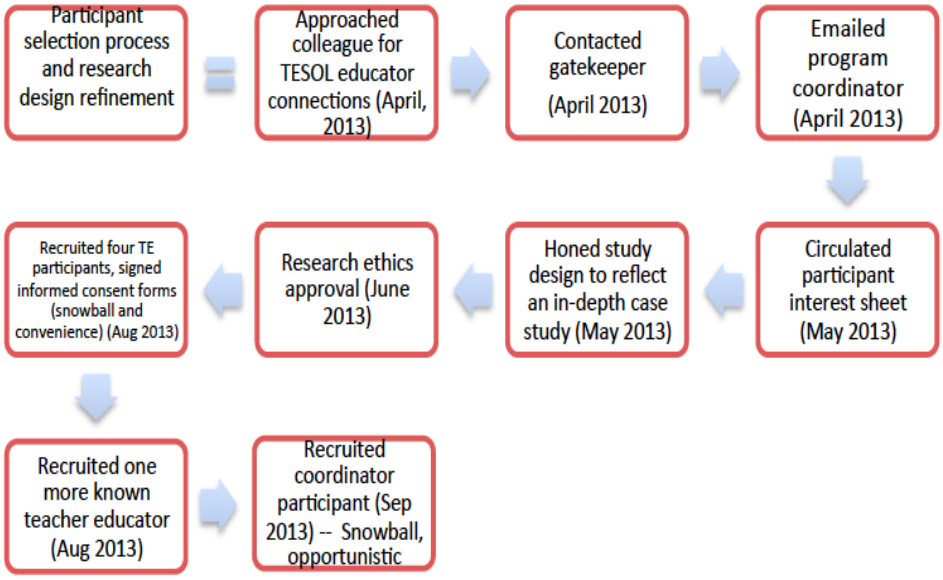

Figure 8. Participant selection process and research design refinement

4.4.3 Obtaining Preliminary Data

Three aims underpinned the Participant Information Sheet, which was written in a register appropriate for an educated layperson as per Durham University research guidelines: 1) to explain the empirical investigation and commitment expectations, 2) to generate participation interest, emphasizing potential professional development, and 3) to solidify information on potential participant numbers.

Though my intention was to investigate TEs' cognitions and practices specifically in relation to 21st-century technologies, at this stage of the research project, and still in accordance with BERA's (2004) ethical guidelines, I initially left the subject of investigation vague, noting only that it was a study of TEs' 'beliefs and planning.' My purpose here was to avoid selecting participants with a particular interest in technologies, and to enable me to gather initial data without participants filtering their answers to a possible emphasis on technologies. I revealed the focus of research after one full round of interviews.

Once Ray had circulated online the Participant Information Sheet via the program's faculty social media system and I could approximate volunteer numbers (four to five) I adjusted the number of observations and interviews, and followed appropriate steps to gain informed consent and permissions.

4.4.4 Reaching Informed Consent and Permissions

I based the Participant Consent Form (Appendix E) on Durham University School of Education's provided model, and submitted to the Secretary of the Ethics Advisory Committee and the Department's Research Ethics and Data Protection Sub-Committee a completed copy of Durham University School of Education's "Research Ethics and Data Protection Monitoring Form" (2013) on June 7, 2013. The form quickly gained approval, with no modifications required.

In my proposal for the research, I explained that all information provided by participants would be used solely for the proposed research and would be securely stored using password-protected electronic systems. I also noted that although pseudonyms would be used in lieu of the real names of participants, the program, and the university, the nature of in-depth description provided in the case study method combined with the limited number of TESOL training programs in South Korea would mean that people familiar with ELT in the country might recognize participants and the program. With participants likely able to recognize each other, I noted that great care would be required when reporting potentially sensitive data.

At all times throughout the research data collection and period, I adhered to the guidelines set out by BERA and the Durham Ethics Advisory Committee. In my subsequent accounts of the procedures and instruments used throughout the data collection and write-up phases, I refer to these guidelines and provide detailed descriptions of the steps taken in adhering to ethical matters.

4.4.5 Assuring Confidentiality

Before and throughout the research process, participants and I determined through numerous discussions the required extent of identifier concealment in the data

when reporting on this research. The aim was to balance anonymity and privacy with candour. Participants determined that detailed individual case descriptions were desirable even at the risk of recognition by colleagues. Participants also approved the use of professional transcribers who had signed non-disclosure contracts. As participants were on summer holidays, their initial viewing of forms and clarification invitation was via email.

4.5 The Case Study Population and Setting

4.5.1 Participants

Participant details are provided in Chapter 5. However, to facilitate understanding of the procedures, Tables 2 and 3 offer a brief summary of relevant information about the study's participants.

Table 2 Key Participants

Key Participants

Name	Position	Age Range	Semesters in Program	Yrs as T.E. before Central Uni.	Gender	Korean or Non-Korean	L1
Ray	Program coordinator of General Program/ Head coordinator of sub-group/ Trainer	45-50	15 (7 yrs)	3.5	M	Non-Korean	English
Jeff	Sub-coordinator/ Trainer	30-35	15 (7 yrs)	1	M	Non-Korean	English
Gina	Sub-coordinator/ Trainer	30-35	7 (3.5 yrs)	3	F	Non-Korean	English
Luke	Trainer	30-35	10 (5 yrs)	1	M	Non-Korean	English
Ben	Trainer in YL TESOL Program	30-35	1 (new recruit at start of data collection)	3	M	Non-Korean	English

Table 3 Additional Participants

Name	Position	Age Range	Semesters in program	Gender	Korean or non-Korean	L1
Mark	Coordina-tor of YL Program	30-35	10 (5 yrs)	M	Non-Korean	English
Dr. Cho	Program Director	55-60	32 (16 yrs)	F	Korean	Korean

4.5.3 A Brief Overview of the Setting

At CU, the various options in the graduate PRESET program included: 1) a 20-week general certificate program for TESOL training (General), 2) a 20-week specialized pre-service TESOL certificate for teachers of YL (YL-TESOL), 3) a 16-week General Program open exclusively to international students (International-TESOL), and a 12-week TESOL certificate for YL teachers, open to two-year degree holders.

Classes of 12-18 trainees ran from Tuesday to Saturday, with an evening and weekend option available for the General-TESOL program. At the time of data collection for this thesis, CU's TESOL Program was also developing blended learning and online options, subsequently implemented. These are documented in Appendix I and analysed in Chapter 8.

The General and YL programs were operated through accreditation with a partner university in the U.S., and credits from the courses could be applied toward a master's degree at that partner university, at other cooperating universities abroad, and at CU's own M.A. of TESOL program. Although the program was geared to non-TESOL professionals, some trainees in the PRESET program were already practicing TESOL professionals and others were educators in different fields. Most of the program trainees were women.

The program's courses all took place in the CU-TESOL Building, located near, but apart from, the university's main campus. The building housed offices for staff, classrooms, meeting rooms, a library with books and periodicals specific to the field of TESOL, a computer lab and photocopy area, dormitories, a small teachers' lounge

with a microwave oven, restrooms, trophy and merchandise display cases, and private/ double occupancy offices for faculty. The classrooms, all with windows and blinder screens, varied in size and contained long desks and separated chairs. Each classroom was equipped with one or more whiteboards and whiteboard markers, a computer dais for the lecturer, a screen and remote-controlled projector attached to the ceiling. One classroom contained an LCD touchscreen board. Some classrooms had corkboard on the walls for the display of trainee work.

The participants in this study taught in various parts of the program. Although they tended to be primarily employed in either the General-TESOL program or the YL-TESOL program (two somewhat independently run programs), scheduling needs meant that some crossover among programs occurred. In addition, some participants also taught a required EL class for first-year students in CU's Department of Education. Moreover, participants occasionally led MOE-sponsored INSET workshops for public school teachers

4.6 Data Collection: A Combined Approach

4.6.1 Research Aims and Data Collection

Human behaviour consists of action, and "a distinctive feature of actions is that they are meaningful to those that perform them and become intelligible to others only by reference to the meaning that the individual actor places on them" (Carr and Kemmis, 1986, p. 88). I collected data over one twenty-week full run of the participants' TESOL program, from August to December of 2013, with additional background information collected during the analysis and write-up phases of research in 2014 and 2015 (Table 4).

Table 4: Gathering Data on Teacher Educators' Practices and Cognitions

Method	Purposes	Implementation	Analysis
Semi-structured Interviews	To gain insights into TEs' and coordinators thinking about their practice; to gather background information on TEs' professional trajectories; to probe for more information about decisions made during observed practice	Conducted 4 one-on-one interviews with each of the 5 focal TE participants throughout semester; audio recorded and transcribed; interviewed program head twice; interviewed coordinator once	Rough coding after each interview—notes in Memo Log; template analysis coding through Dedoose
Classroom observations	To gain information on classroom interactions and instructional practices with digital technologies; to see what devices were in use in the classroom and how TEs were using them	2 X 5 TEs; Employed an observation protocol focused on TE speech and actions; noted analogue vs digital tech used; notes hand written and retyped after observations	Reread and added notes to Memo Log; template analysis coding through Dedoose
Photographs of participants' offices, classrooms and buildings	To keep a visual record of analogue materials, classroom wall space, board work, computer screens, and office/ building organisation and layout at different points of the semester	Took photos throughout the semester, using LG Optimus phone camera	Reviewed throughout the analysis period in 2014/2015
Photographs of participants' offices, classrooms and buildings	To keep a visual record of analogue materials, classroom wall space, board work, computer screens, and office/ building organisation and layout at different points of the semester	Took photos of participants' offices, classrooms and buildings	To keep a visual record of analogue materials, classroom wall space, board work, computer screens, and office/ building organisation and layout at different points of the semester
Written Document Collection: Curriculum, lesson plans, shared folders	To gain information about the design of the program and potential tech uses within it, including how information is shared among TEs	Gained access to SugarSync folders by September 2013, saved	Used to formulate questions in interviews; reviewed during write-up period
Written Document Collection: reflections	To access participants' rationales for instructional choices made; to explore TEs thinking about their own practice	Emailed participants before and throughout Fall 2013 semester	Template analysis coding through Dedoose
Written Document Collection: Assignment instructions	To gather information on pedagogical decisions and possible tech expectations for trainees within projects	Read at beginning of Fall 2013 semester, re-read throughout analysis period	Salient notes recorded in Memo Log, with large sections coded through Dedoose
Written Document Collection: CVs	To gather background information on participants' professional trajectories	Accessed and read after Interview #1	Used for demographic information; analyzed as a presentation of participants' professional skills and backgrounds

Written Document Collection: TEs' publications, presentation notes: and blog postings	To gain insights into TEs' roles within a community of practice	Followed participants' TESOL-related blogs and social media posts and read latest posts before and after interviews as well as during analysis and write-up stage—took notes added to Memo Log	Notes from Memo Log coded using Template Analysis
Audio-visual Document Collection: TEs' webinars and video postings	To explore TEs' interactions and involvement within the larger TESOL community	Watched participants' webinar and looked at presentation descriptions, before and after interviews as well as during analysis and write-up stage—took notes added to Memo Log	Notes from Memo Log coded using Template Analysis
Written Document Creation: Research Memo Log	To keep track of insights gleaned during fieldwork	Typed a log throughout the research period, with minimum weekly notes before and during the Fall 2013 semester and sporadic notes throughout 2014 and 2015	Coded using Template Analysis; added to memos in Dedoose

I made extensive use of observations and interviews. Participant observation is useful for "collecting data on naturally occurring behaviours in their usual contexts," while in-depth depth interviews are "optimal for collecting data on individuals' personal histories, perspectives and experiences, particularly when sensitive topics are being explored" (Mack, Woodsong, MacQueen, Guest, & Namey, 2005, p.2).

After the initial face-to-face meetings with each of the five participants to field questions and obtain signatures on consent forms, I conducted four rounds of audio-recorded face-to-face semi-structured and open-ended interviews. Each interview ranged from 45- 90 minutes, with a total of twenty interviews. I interviewed participants on "their territory" (Gillham, 2000, p. 8), with all but one of the discussions taking place in the privacy of the participants' offices (for a participant's convenience, one interview was at his home, while another participant was interviewed in a quiet café). I also observed the five focal participants' 50- to 100-minute lessons twice and conducted post-observation face-to-face interviews or emailed questions and responses.

To gain insights into the program, near the beginning and end of the semester I conducted two 60-minute interviews with Dr. Cho, the director of the program, and

reviewed her publications and presentations. I interviewed Mark, the coordinator of the YL-TESOL program section (120 minutes). In addition, I observed and took detailed notes on the 75-minute opening ceremony of the program. Moreover, the five focal participants wrote regular reflections throughout the program, based on loose or structured prompts I had provided. I collected artefacts such as participants' lesson plans, syllabi, assignment instructions, presentation and webinar notes and slides, curriculum vitae, professional blog postings, social media postings, research papers and professional publications, and photographs of the offices, classrooms, and hallways, and building exteriors (including the changing posters and banners advertising upcoming programs). I kept on-going field notes containing observations and reflections (Rodgers and Cowles, 1993), analytic memos, and contextual notes: the "… things to be followed up, insights, or hunches--- a thousand and one details" (Gillham, 2000, p. 8) that needed to be kept track of throughout the research period. An excerpt of my research log is in Appendix F.

4.6.2 Delving Into Teacher Educators' Cognitions and Practices: Details of Instruments and Elicitation Techniques

To allow participants' foremost thoughts about their practice to rise to the surface of conversations, I began with open-ended questions. These can evoke responses that are "meaningful and culturally salient to the participant; unanticipated by the researcher; rich and explanatory in nature" (Mack et al., 2005). However, I offered directed elicitation if participants expressed difficulties in thinking of what to say in reflections and in later interviews, once the subject of the research had been clarified to all participants. In addition to leaving the initial research purpose vague, I avoided collecting pointed demographic data until the final interview, in order to ascertain whether trainees mentioned factors such as age or about devices in discussing planning. Participants confirmed the acceptability of delayed details on the research purpose prior to signing consent forms.

A full description of and rationale for use of the data collection instruments is in Appendix G. Table 5 demonstrates how each instrument and method corresponded to research questions.

Table 5 The Study's Research Questions and Data Collection Methods

Research Questions	Data Collection Methods	Time Frame of Study
1. How do ESOL teacher educators integrate 21st-century technologies into their practice?	1. Multiple one-on-one interviews 2. Workspace and classroom observations 3. Course materials 4. Photographs 5. Researcher's field notes 6. Participants' written reflections 7. Blogs, webinar, presentation slides, discussion posts 8. Survey answers	Aug – Dec 2013 1. One-on-one interview approx. once per month (X4 each) 2. Observed teaching sessions twice per semester 3. TPACK survey (Dec 2013)
2. What are ESOL teacher educators' cognitions in relation to the pedagogical purposes and efficacies of 21st-century technologies?	1. Multiple one-on-one interviews 2. Workspace and classroom observations 3. Course materials 4. Photographs 5. Researcher's field notes 6. Participants' written reflections 7. Blogs, webinar, presentation slides, discussion posts 8. Survey responses: TPACK Survey/ 33 Digital Skills	1. One-on-one interview approx. once per month (X4 each) 2. Observed teaching sessions twice per semester 3. TPACK survey (Dec 2013) 4. 33 Digital Skills Survey (Dec 2013)
3. What factors influence teacher educators' decisions to integrate 21st-century technologies into their practice?	1. Multiple one-on-one interviews 2. Workspace and classroom observations 3. Course materials 4. Curriculum vitae 5. Researcher's field notes 6. Participants' written reflections 7. Blogs, webinar, presentation slides, discussion posts 8. Survey responses: ATE	1. One-on-one interview approx. once per month (X4 each) 2. Observed teaching sessions twice per semester 3. Responses to ATE survey (Sep 2013)

4.7 Data Quality

4.7.1 Validity and Reliability in a Qualitative Case Study: Approaches to Rigour

Although its exposure of the "fallacy of value-free knowledge" (Scott, 2000, p. 2) is one of the great contributions of qualitative inquiry to academia, a reduction of researcher bias is desirable for certain points in any study. Weber (1974, in Scott 2000, p. 21) notes the values inherent in doing any kind of research in terms of orientation, data collection/analysis, and dissemination. Weber argues that orientation and dissemination cannot be value-free, but that in the collection and analysis phases, a researcher should and can be uncommitted for validity purposes.

Much debate surrounds the term "validity" in reference to qualitative research. Validity can be defined as "the quality of being logically or factually sound; soundness or cogency" (Oxford Dictionaries, online, 2015). However, the strategies that demonstrate 'soundness' are hotly contested. Whittemore et al.'s (2001, p. 529) synthesis of opposing terms include such words as 'plausibility,' (Altheide and Johnson, 1994) 'canons of evidence' (Marshall, 1990), and 'interpretive authority' (Thorne, 1997). In my description of measures to ensure validity, I use a pared down version of Whittemore et al.'s (2001) synthesis, with a focus on Lincoln and Guba's (1985) terms now common to the contemporary literature for qualitative researchers: credibility, transferability, dependability, and confirmability, attributed as criteria for 'trustworthiness' (Lincoln and Guba, 1985).

Audit trails, reflexivity, thick and rich description, triangulation, and member checking, all used throughout the entire design and iterative approach to the research questions, can enhance the trustworthiness of a study (Carlson, 2010; Morse et al., 2002). I maintained an audit trail by keeping all documents and resources related to the study, and time-stamping interviews, transcriptions, memos, and revisions. For reflexivity, I noted assumptions, concerns, and worries in my field notes and memos, and have reported my assumptions in this thesis. The description extends to the analysis procedures, relationships with participants, and concerns I had throughout the study. Triangulation is present in the multiple data sources and in corroborations of events from different participants. In addition, I

sought a second opinion on the categories from a fellow educational research expert.

4.7.2 Credibility

Qualitative research should be believable to both readers and to participants themselves (Trochim, 2006). For the former issue, I used detailed descriptions and an audit trail. For the latter issue, I conducted member checks at various stages. Member checking is unhelpful when data have been decontextualized and synthesized, but case study data can be preserved in a raw enough state for the task (Morse, et al, 2002); Glaser and Strauss (1967, in Morse et al, 2002) advocate full transcripts. For my study, I provided participants with photographs and relevant chapter sections, sent to members for verification. Member checking took place at several points: via between-interview emails; in February, 2014, when I sent members photographs and final interview transcripts (one participant pointed out that a photograph had been mislabelled); in September, 2014 before I was to present some of my findings at a conference; and after analysis and write-up until November, 2015. Clarification emails were also exchanged to allow participants to explain their meaning after having reflected on answers after interviews. For example, Gina sent me a post-interview link to a video on the debate on digital nativism.

4.7.3 Dependability and Confirmability of Data

While quantitative approaches measure reliability, qualitative approaches consider the dependability and confirmability of data. It is not expected that another researcher could recreate all of the conditions of this unique case study. However, through my audit trail and descriptions of how I accessed and interpreted these data, other readers and researchers can both replicate the methods I have followed and can come to their own conclusions regarding the interpretations. While readers may not necessarily agree with these analyses, they can understand the processes by which I came to my conclusions (Koch, 1994).

4.7.4 A Note on Triangulation

Lichtman (2010, p 229) maintains that 'triangulation' indicates too perfect a shape and is "adopted primarily by those who take a very conservative view of qualitative research". Nevertheless, I believe that by exploring information from multiple sources and over time (Yin, 1994), I have attempted to dig deeper into the issues of TEs' cognitions and practices.

4.7.5 Transferability and Cumulation

A criticism of qualitative research is whether conclusions can add to a body of knowledge (Miller, 1999; Oakley, 2000); however, non-cumulation is not a problem peculiar to qualitative research (Bhaskar, 1979). Luntley (2000,) aptly notes that when it comes to experiments in the social world:

> input X may on one occasion result in output Y, but that does not mean it will next time, for in the meantime, responses from other elements in the environment may change the effect which X produces next (p. 18).

Moreover, quantitative instruments can lack validity in educational research: "What kind of 'education' is aggregable, countable, and measurable?" ask Freebody and Freiberg (2006). If research is an effort to increase knowledge, then what we can learn from a study can in fact be applied to other studies. Such a conception of generalisation "lightens the burden" (Eisner, 1998, p. 203).

Other qualitative researchers argue that non-cumulation is in fact a dilemma. Hammersley (2002. p. 17) contends that commitment to one-off studies is an "important defect of much educational research" and even Lincoln, despite her assertion that interpretivist theories are "fat with the juice of human endeavour, human decision making, *zaftig* with human contradiction" (2009, p. 4), admits that non-cumulation is one of the lasting problems of qualitative research.

This study cannot be generalised to TEs in other contexts. Nor does it aim to create a new, grounded theory (Glaser and Strauss, 1967; Strauss and Corbin, 1990);

theories such as the UTAUT and TPACK models were used as the conceptual framework in the study, and were not meant to be proved or disproved through my research. The case study I present here is context-specific. Nevertheless, it can offer *transferability.* Eysenck (1976, p. 9, in Flyvberg, 2001), who once viewed case study as just a method of producing anecdotes, "later realized that 'sometimes we simply have to keep our eyes open and look carefully at individual cases – not in the hope of proving anything, but rather in the hope of learning something!'" (p. 422). It is my hope that the deep data and abundant description, and the interpretations I provide here, along with the "directions and questions" (Lauer & Asher, 1988, p. 32) themselves, will "make sense to the public and to those we study" (Preissle, 2006, p. 690) and will ring true to TEs in other contexts and be used to promote reflexivity (Atkinson, 1992; Hammersley and Atkinson, 2007).

In the next section, I discuss the methods I have used to store, analyse, and interpret the findings.

4.8 Data Management

In analysing the data for this qualitative case study, I focused on these three questions:

1. How do TESOL-TEs' integrate 21st-century technologies into their instructional practice?
2. What are TESOL-TEs' cognitions in relation to the pedagogical purposes and efficacies of 21st-century technologies?
3. What factors influence TEs' decisions to integrate 21st-century technologies into their practice?

In this section, I discuss how I stored the data, how I accessed them mentally and physically, and the journey on which I embarked from the beginning of my analysis.

4.8.1 Data Storage

I followed procedures recommended by Bishop (2012) for data storage. First, I stored data in multiple formats. For initial storage of data, I made files in MS Word, saved on the password protected hard-drive of my computer, and saved versions of

documents by using Track Changes showing changes and dates to be revealed. I kept pseudonym-based transcripts here. I employed Dedoose (2013), an online encrypted computer assisted qualitative data analysis software (CAQDAS) program, where I conducted the coding procedures. Two backed-up copies of the original written texts and audio files (with only initial codes done in margins), with one stored on a memory stick were kept in locked cabinets in my work office, and one stored on computer back-up drive in my home. Paper print-outs of written data sets, including the interviews, the observation notes and notebooks, handwritten notes from interviews, and the research memo log, were also kept in folders in a locked cabinet of my office. I also downloaded and backed up the coded data sets from Dedoose after any major changes and bursts of coding. I kept three versions of these back-ups. After full analysis, I made one back-up file in Rich Text Format (.rtf) to allow for long-term digital preservation and future sharing of data (UK Data Archive, 2011, p. 13). I used a consistent format for naming documents that consisted of participant code names, interview or observations times, and real dates (e.g. Luke Interview 4 December 3 2013). The UK Data Archive recommends version control of all files, and suggests Google Docs as a best practice method to keep track of changes to files, but not a place to store sensitive information. I initially used Google Docs (Drive) to store photographs, audio files, and transcripts, but quickly transferred these to hard drives (See Figure 9).

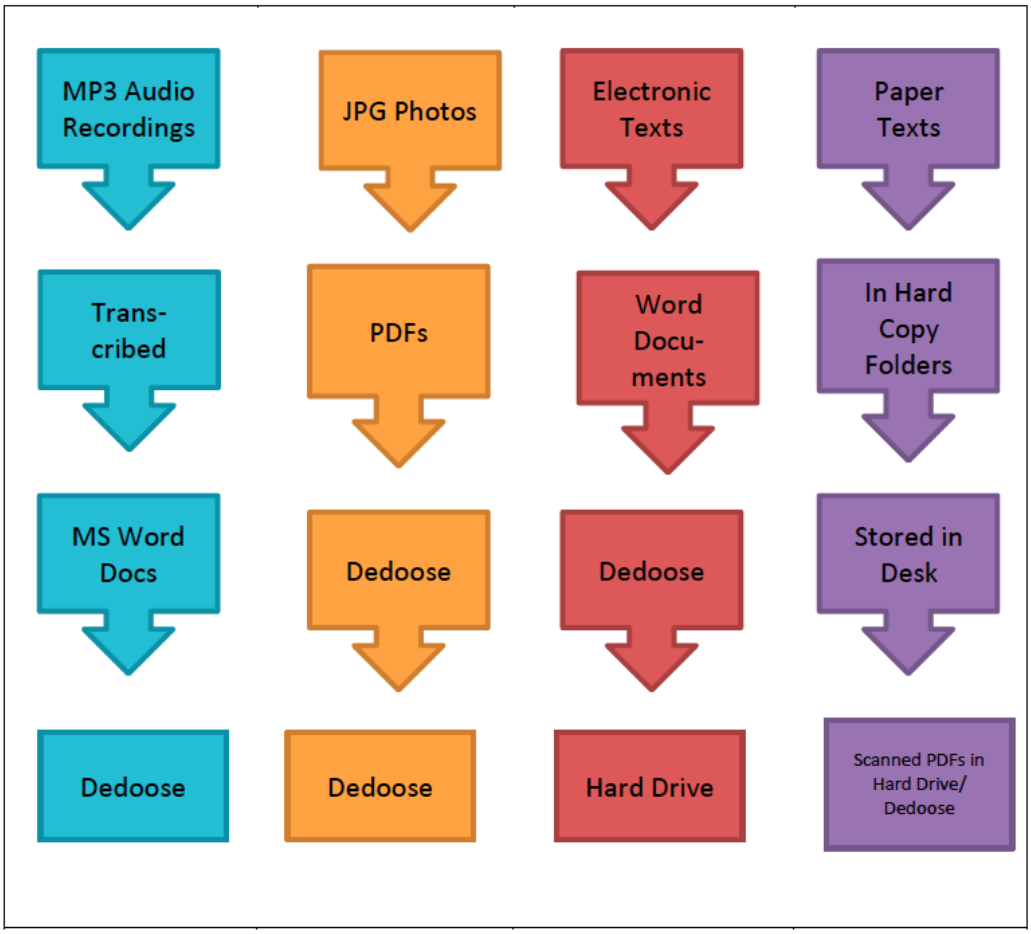

Figure 9. Data management flowchart

4.8.2 Security and Legal Issues of Data Storage

Pseudonyms were used early on in the data storage process and in copies of files stored in Dedoose (Dedoose does not allow for modifications to input files once coding begins). However, original digital files sent back and forth between the researcher and transcribers contained identifiers within the audio files (for example, when participants used the real names of colleagues and of their institution). I removed name identifiers from the titles of audio files before passing them on to transcribers. I kept a paper copy of the equivalent names for reference, and kept these in a locked cabinet in my work office. I also kept two digital copies of original unedited versions of data.

4.8.3 The Data Management Process

Morse et al. (2002), maintain that researcher responsiveness is key in all phases of qualitative inquiry, producing an iterative process of collection and analysis. In analysing the data, I followed Morse's (1994) framework of four stages: 1) comprehension, 2) synthesis, 3) theorising, and 4) re-contextualisation.

Between subsequent interviews and observations, I initially coded prior data into very broad in-vivo and descriptive coding categories (Saldaña, 2008) using the document comment feature of MS Word 2010. These comments were used to create protocols for subsequent interviews and written questions, as per the suggestions of Merriam (1998). After the final interview in December, 2013, I utilised Dedoose. By January, 2014, after having gone through ten interviews with a heavy coding hand, and based on the categories that had come up in my memos, I selected King's (2004) template analysis to hone the coding tree going into detailed stages of analysis. At that point, based on themes visible in the data, I had determined that the key descriptors from the UTAUT and UTAUT 2, the TPACK, and other themes relevant to the roles of TEs would be most appropriate for template inclusion, and drafted a new template based on these areas. After merging the template codes, I was able to distil them down to more elegant categories as per the recommendations of Creswell (2012).

4.9 Data Analysis

4.9.1 A Rationale for Template Analysis

While data are being collected, qualitative researchers face vast amounts of information from various sources, and numerous options exist for analysis. Classic Grounded Theory (Corbin and Strauss, 1990; Glaser and Strauss, 1967), Interpretive Phenomenological Analysis (Smith, 2004), and the Constant Comparative Method (Glaser & Strauss, 1965) are powerful tools for theory development and the generation of concepts. They are particularly useful when a researcher is breaking completely new theoretical ground. Within these coding frameworks, diverse researchers may sit along a continuum of acceptance of *a priori* concepts being

introduced in the coding. Some even advocate entering fieldwork with a mind unencumbered by research into the literature in order to better read and observe behaviours and events.

For the present study, however, my purpose was to elucidate existing conceptual frameworks with empirical evidence and observations. While the questions under investigation are exploratory, the theoretical framework has an element of the confirmatory. For such a purpose, the flexibility of Template Analysis (King, 2004) is particularly beneficial. It can still be employed within a "contextual constructivist position" (Madill et al., in King, 2015), but allows for the inclusion of some *a priori* codes from existing theories. See Figure 10, adapted from King (in Gibbs & King, 2012a,b,c,d,e,f,g,h,I,j), for an outline of the process.

King's (2014) description of Template Analysis has much in common with the more general Applied Thematic Analysis (ATA) outlined by Guest, MacQueen, and Namey (2011), as both methods identify key themes in text, use code books, and have both positivist and interpretive leanings. The key to these combinations of techniques is a continual search for distinct patterns but the allowance of deductive methods.

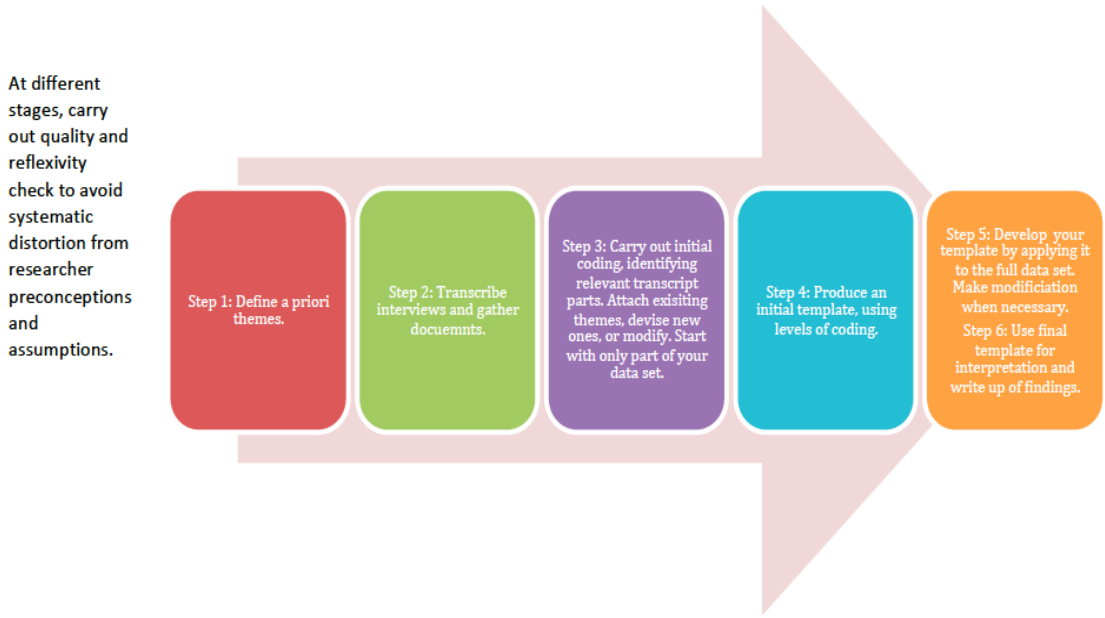

Figure 10. The process of template analysis, adapted from King, 2012.

4.9.2 Computer Assisted Qualitative Data Analysis and Template Analysis

CAQDAS provides a number of advantages over traditional paper-based coding solutions, including tools for content searching, linking, coding, queries, mapping, and navigating data without conceptual abstraction (Silver, 2009, p. 6). Dedoose 5.0.11's visual system allows a researcher to highlight and annotate stored excerpts of texts, write memos, add descriptors, and apply multiple colour-coded coding tags to any given chunk of text. Codes can be organised into hierarchical trees and added, merged, or deleted, making the program an excellent match for King's (n.d.) suggestions in combining inductive and deductive reasoning in Template Analysis. King (2004, 2014) suggests that researchers include definitions for codes in the template. I could import definitions of indicators from the UTAUT and TPACK, and hover over the codes to see the definitions, allowing unencumbered access to definitions.

Moreover, I was able to retrieve text according to codes, view the number of applications of each code, and make graphs, word clouds, and other pictorial representations of key forms of data. Although the simplicity of the "Quick Code"

clicking system can easily lead an overzealous coder to create an overabundance of categories, the merge or delete functions helped address this problem.

4.9.3 Quality Checks in Template Analysis Coding

A potential danger of Template Analysis is failing to make adjustments when the *a priori* codes do not match observations. King (2014) advises using a variety of quality checks within Template Analysis studies. Among his suggestions, I employed 1) an independent coder, 2) defending my analytical decisions to a constructively critical "expert panel," 3) respondent feedback, 4) an audit trail, and 5) a reflexive journal.

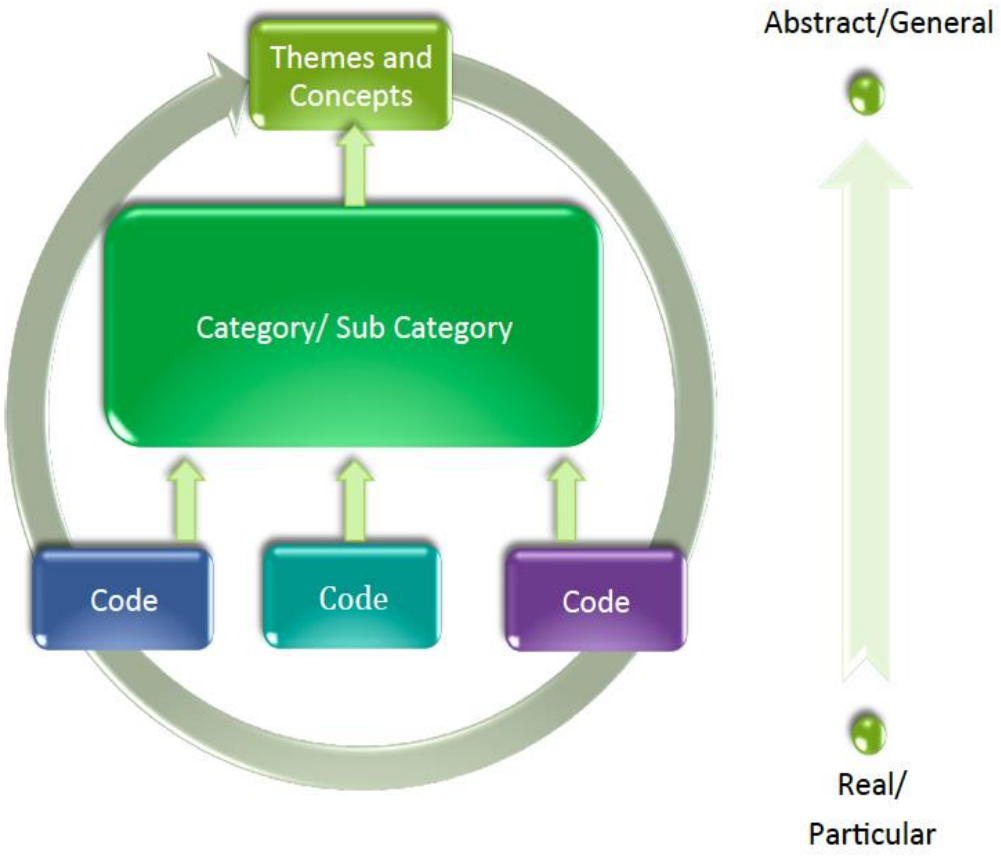

Figure 11. The coding process, adapted from Saldaña, 2009, p. 15

4.9.4 How Each Type of Data Became a Finding

Dedoose's tagging system of coding, which allows multiple codes to be applied to each section of data, allowed me to easily keep track and of retrievable illustrative quotes while simultaneously applying other codes to the data. Dedoose's (2015) 'great quotes' guideline echoes the advice of other qualitative researchers (Lofland et al, 2006; Saldaña, 2009) to create a system to note representative quotes.

Following advice from a Durham committee advisor (and backed up by Auerbach & Silverstein, 2003, p. 44), I lay a printed copy of my research questions in front of me as I coded. Working from my template, I considered the following questions, adapted from Emerson, Fretz, & Shaw (1995) and Saldaña (2009):

1) What are people trying to accomplish?
2) What strategies are they using to accomplish something?
3) What are their assumptions?
4) What do I see happening here?
5) Why did I include these notes?
6) What strikes me?

I followed Saldaña's (2009) advice to novice qualitative researchers to code "anything and everything" (p. 13) that was collected as they learn to recognize what counts as salient.

4.9.5 Beginning Steps: Holistic Coding

Before embarking on a line-by-line coding procedure using Dedoose, I employed holistic coding procedures on interviews, reading pages at a time to access a look at a bigger picture. I also used this holistic coding method on documentary evidence such as PR pamphlets from the school. From the holistic overviews, I made provisional codes.

4.9.6 First Stage Coding

In the first stage of coding, I used an attribute coding technique. I tagged demographic information for future retrieval and to note comparisons (Gibbs, 2002; Lofland et al, 2006). I used simultaneous coding on most passages, as any given datum was both descriptively and inferentially meaningful. While a criticism of simultaneous coding is that researchers may find themselves confused when interpreting the data, the use of the tagging system in a CAQDAS such as Dedoose means that excerpts can be instantly retrieved for any number of codes, allowing for a multidimensionality of analysis, with interrelationship analysis (Saldaña, 2003), and splitting, splicing, and linking (Dey, 1993) both possible.

While creating the initial codes, I also applied a structural coding method (Saldaña, 2009) by linking the research questions to the data I was coding. During this stage, I created mainly descriptive codes, and occasional in-vivo codes, using my own words that incorporated a degree of analysis, or used measures from the UTAUT and TPACK. I then used the tagging method in Dedoose to retrieve particularly pertinent quotes. Once I had overviewed the first ten interviews and developed the initial template, I returned and narrowed the categories. At this point, in addition to keeping a field log where I had already jotted down analytic memos, I employed the Dedoose memo-making tool to link categories.

4.9.7 Second Stage Coding

In the second phase of coding, I once again took a holistic look at the data corpus by skimming through its entirety. I then had another experienced educational researcher look at the codes. He suggested I whittle down the number of 'forces' (Chapter 8). At this point, I worked on focused coding, and eventually a form of axial coding for category creation. The categorical structuring process had already begun when I made the template, as Dedoose allows codes to be linked under trees.

I first added pre-coded analytic memos embedded in observations and added post-transcription. Then, I used the template to re-code interviews from the focal participants in chronological order. My reason for this was to follow the timeline of

events occurring in the TESOL program setting as they were happening and as participants and I had learned about them.

I reread all the focal interviews, and honed the template, working the codes into a system of elaborative coding (Auerbach & Silverstein, 2003) by refining theoretical constructs from the UTAUT/ UTAUT 2 and deleting ones that had no bearing (e.g: gender). The template expanded to over one hundred tags, and then was refined once again to the roles of TEs, constructs from TPACK and the UTAUT, and the concepts of 'forces,' labelled at that time 'decisions from above.' There were also tags of descriptive information.

In the second stage, I investigated (Lofland et al., in Saldaña, 2008, p. 13) 1) cognitive aspects or meaning, including ideologies, rules, self-concepts, and identities; 2) emotional aspects; 3) hierarchical aspects or inequalities, and 4) interactions among participant agency with structures, processes/ causes and consequences in the data. In reviewing the codes, I discovered many types of interactions. I reworked the tagging template to reflect these. See Figures 12 and 13 for example of an interview excerpt and a word tag query, respectively.

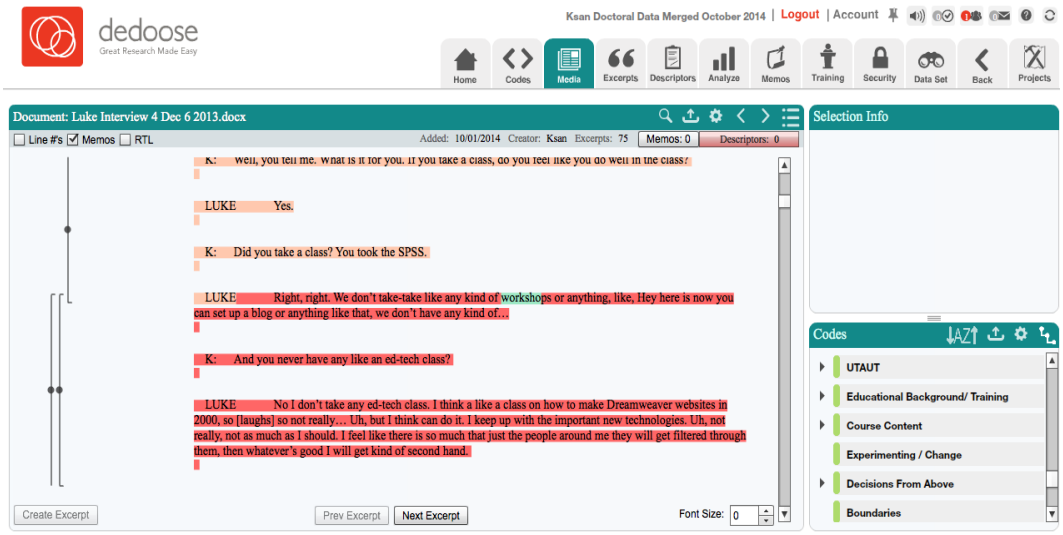

Figure 12. Example of coding: Excerpt from Luke, Interview 4, Dec 6, 2013

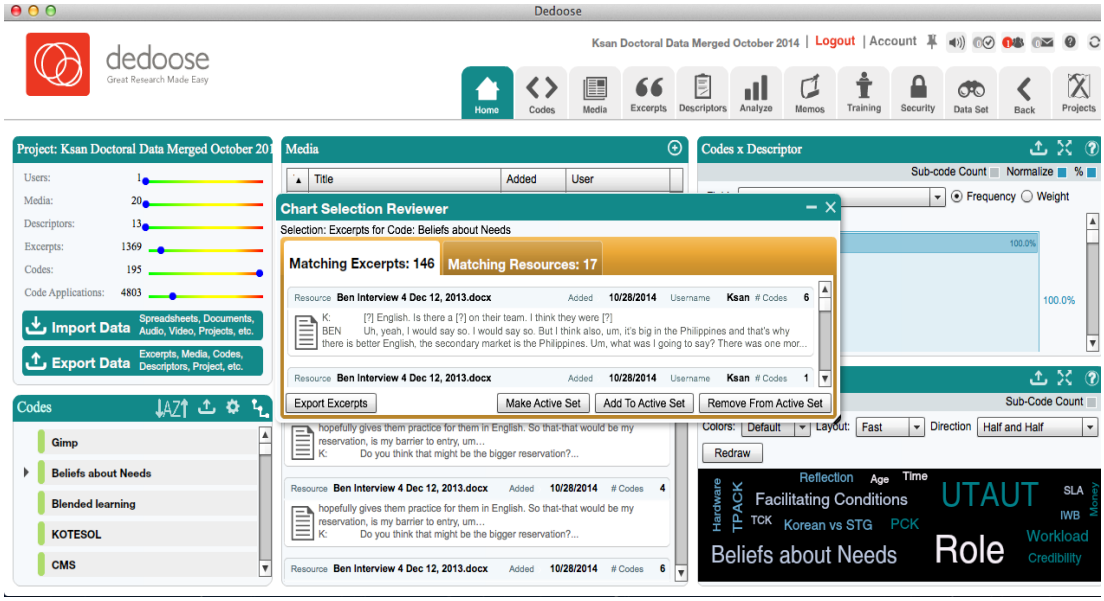

Figure 13. Example of a query using a word tag

4.10 Chapter 4 Conclusion:

I have taken great care in my responsibilities as a researcher. I have considered my ethical and scholarly roles in terms of participant selection, data collection, data management, analysis, and dissemination. In the next chapters, I discuss the findings resulting from these processes.

CHAPTER 5: HOW DO TESOL TEACHER EDUCATORS USE 21ST-CENTURY DIGITAL TECHNOLOGIES IN THEIR INSTRUCTIONAL PRACTICE?

5.1 Chapter 5 Overview

In Chapter 4, I provided an overview of the methodology of this study. In this chapter, I discuss findings from data gathered through interviews, observations, reflections, photographs, and document review to address Research Question #1: How do TESOL-TEs use 21st-century digital technologies in their instructional practice?

Baxter and Jack (2008) assert that context is imperative to the analysis of the qualitative findings of in-depth case studies. Before discussing the details of how each participant integrated technologies into his/her instructional practice in the Fall 2013 semester of teacher education in CU's TESOL program, I provide descriptions of what that instructional practice entailed, along with background information on the professional training and experience of each participant in relation to education, ELT, teacher training, and technologies. Such information situates each participant's findings within a context, and grounds the analysis in Chapter 6, 7, and 8. To safeguard the anonymity of the participants and their place of employment, I have used pseudonyms for the names of the participants and their colleagues, the university, the programs, the courses, and participants' professional organizations. However, to clarify circumstances in reporting the uses of technologies, I have included the real names of the technology tools used by the TEs.

5.2 The Case of Ray

5.2.1 Description of Ray: "Embrace the Idea of Change"

Approaching fifty, Ray was the eldest member of CU's TESOL-TE faculty, and the head coordinator for the General Program, working directly under Dr. Cho. As

coordinator his duties involved assisting Dr. Cho in overseeing developments to the program and making hiring decisions, holding meetings for subject coordinators, and providing a link between Dr. Cho and the TEs. He taught four different CU-TESOL courses and was the coordinator for the Teaching Methodologies (TM) strand of the General Program. In addition, during the Fall 2013 semester he was teaching a required credit undergraduate basic EFL course for first year students at CU; in semesters where the CU English department lacked teachers, they would pull some from the TESOL program. Likewise, when I met him, Ray had just been asked to teach for the first time one of the YL TESOL courses, as they were missing a trainer in that strand of the program. In the Fall 2013 semester, Ray's teaching load included two sections of TM (one for Koreans and one for international students), one YL-TESOL class, and one undergraduate EFL class. He also gave occasional INSET workshops.

By the fall of 2013, Ray had 33 years of teaching experience, including his beginnings as a high school drama tutor while a college student in North America and 28-years of formal experience, from his early work in EFL in Eastern Europe to his various English-education positions in South East Asia. He had also spent four years as a technical coordinator at a North American university where he helped to create a multimedia lab, supported faculty, helped with hiring, supervised staff, maintained computer hardware, and aided with software development. Prior to becoming a TE at CU, he worked for a year providing TESOL education courses to university faculty in a major city in South East Asia. By August 2013 he had been working in CU's TESOL program for fifteen semesters (7.5 years) and had been Program Coordinator for three years.

Working as a TE in CU's TESOL programs required a minimum of a master's degree in a relevant field. Ray had an undergraduate degree in theatre arts and English literature and a master's degree in Applied Linguistics from a well-known North American university. He had studied his master's thesis under the tutelage of two renowned sociolinguistics scholars. Ray also held an RSA DipTEFLA (now the Cambridge Diploma in English Language Teaching to Adults, or DELTA). In addition

he held certification from an organization for computer professionals; the certification exam covered such areas as network technologies, installation and configuration, different kinds of media, network management, and security.

5.2.2 Ray's Electronic Devices and Hardware

Ray considered himself an avid user and early adopter of technologies (Interview 1, August 2013; Interview 4, December 2013), and he possessed a number of electronic devices to help him with his work. In addition to the standard desktop computer provided to him for his office at CU, he owned a number of computer devices that he used in his teaching practice. He said he only bought something new when he felt it would be useful for him (Interview 4, December 2013). Along with the tablet computer and smartphone he used during his classes, he had a first-generation e-reader for reading electronic books including resources on teaching. He used three different computers. Among these was a 2.5-year-old Windows laptop which he deemed aging in terms of computing device lifespans but which he felt was "phenomenally good still, battery life's still huge, still great with it" (Interview 4, December 2013). In his home office, he had attached his laptop computer to two additional monitors. In his school office he had a work-provided desktop PC. To this he had added a second monitor, claiming that before he "wasn't doing any work there 'cos it was too small a desktop" (Interview 4, December 2013). He also had a portable digital music player that he joked hardly counted as a working technology (Interview 4, December 2013).

5.2.3. Uses of 21st-century Technologies for Instructional Purposes

Educators' uses of instructional technologies can be categorized in diverse ways. Mayer (2008) offers a motivation-based model. Kearney, Shuck, Burden and Aubusson (2012) propose an authenticity, personalization, and collaboration model. Here I use an interactional model based on Lou, Bernard and Abrami (2006) to delineate some of the interactions I observed in participants' uses of technologies in his instructional practice. I found that these interactions often aligned with the various roles of the participants in their work (manager, colleague, employee) and with their role within the classroom (language teacher, pedagogical advisor) and

outside it (teacher-learner), although these were fuzzy, overlapping categories.

5.2.4 Ray's Uses of 21st-century Technologies to Facilitate Teacher Educator-Teacher Educator Interactions

As a coordinator with a professional background in technical management and as the program's longest-term faculty member besides Dr. Cho, Ray had been instrumental in incorporating a number of technologies into the TE-to-TE interactions in CU's General Program. Primary among these was a commercial cloud-based file sharing and storage program called SugarSync. With this freemium technology tool (free to a certain amount of access and pay-per-use after that), the faculty could install the program on their home and work compute devices and synchronize folders electronically. Ray ensured that materials for the three main General Program strands, TM, Cross-cultural Communication (CCC) and Second Language Acquisition (SLA), were all combined in these folders, including student books, teachers' guides, written exams and listening tests, and extra notes. Because the General Program used a standardized but faculty-created set of materials for all trainees in the courses, SugarSync allowed the faculty not only to share and collaborate on materials, but it also provided a method for supervisors to remotely keep track of updated versions of files, even when away from CU during holidays.

A second crucial digital tool that Ray had integrated into the General Program for a variety of different interactions, including ones among the TEs, was a suite of no-charge services by Google, one of the world's Web 2.0 giants in 2013. Although Google had a free emailing function as well, instructors used its Google+ social platform, which included "Circles" (later "Communities"), to create a type of online community in which posted messages would get sent back to users' emails if wished. In fact, when recruiting other participants for the study, Ray had initially posted a message to Google Circles. In their Circle, instructors could post items such as questions and answers, links to external websites, and videos.

Under Ray's supervision the TEs had also set up a system of task collaboration

using Google products. In the General Program all trainees and trainers had begun using Google accounts for communication. By the Fall 2013 semester faculty had developed a system to ensure that trainees were getting access to Google Circles: teachers in the required Writing class had trainees sign up for Google accounts at the beginning of the semester during class time. In that first class the TEs also took digital photographs of their trainees; they were responsible for creating a class list with photographs for their particular group in order to save other faculty the trouble of doing the entire process on their own.

In addition to using Web 2.0-based technologies to communicate with other instructors in the General Program, Ray frequently interacted with other experts in the field of ELT about his work. He had created a professional TESOL-related blog in which he incorporated articles he had read and musings he had written informed by (and informing) his instructional practice. Ewins (2005) argues that academic weblogs can be both reflective tools and media for efficient inter-professional connections. Ray's blog, whose title implied a theme of personal change, included sections on mentoring in teacher education, reviews of TESOL-related literature and educational technologies, stories and reflections from his work in one of the classes he taught, and a personal narrative detailing his career development and his work as a TE. Ray's blog was in turn linked to his other social media sites, including Facebook, Google+, Twitter, LinkedIn, Blogspot, and Wordpress accounts. Along the side of his open-access blog, readers could see postings he had written on Twitter and responses to his various postings. In September of 2013 Ray told me his blog was a work in progress; indeed, when I looked at it at different points over the subsequent year, the design had changed to integrate what had previously been the more disparate sections of three blogs. While most of Ray's online interactions with other instructors were asynchronous, he had experienced one synchronous encounter just before I first met him: a webinar he had given on the topic of using Google+ to support classroom language learning.

As a teacher-learner, Ray also used 21st-century digital technologies to interact with instructors in the wider field external to the university. When confronted with

teaching challenges such as how to use video for reflection, he turned to Google searches and Youtube lessons first. He was an avid reader of online TESOL-related literature and said he downloaded electronic works to his e-reader on a near daily basis. He also regularly followed a number of TESOL experts through Twitter, Google+, webinars, blogs, podcasts, plus webcasts. One of his most respected TEs, ELT expert Scott Thornbury, posted regular webcasts and podcasts on his blog, one of which Ray regularly included in the Methodology course for international students (Observation 2, November 2013).

In terms of formal learning experiences, throughout the Fall 2013 semester Ray was taking a free-of-charge massive open online course (MOOC) on how to be a better online teacher. It was one of many MOOC courses on the Coursera platform that he had taken, although not always to completion.

5.2.5 Ray's Uses of 21st-century Technologies to Facilitate Teacher Educator-Learner Interactions

Lou et al. (2006) define instructor-learner interaction technologies as ones that connect learners to experts. They can take the form of web conferencing or discussion forums and can be either synchronous or asynchronous. Ray had integrated into his practice a number of technology tools and practices to allow for instructor-learner interactions. The TEs at CU-TESOL had all been assigned special university-only email address accounts, however, they chose not to use them as they were "too cumbersome, require[d] Outlook and hooking to other web-based services to be practical, etc." (Ray, email Nov 16, 2015). Instead Ray used his regular Google email address and used Google Circles for interactions with different classes within the program. Through this system he was able to receive instant messages not only from trainees but also from program alumni at any hour of the day or night. He also used his professional Facebook account and Twitter accounts, apart from his social ones, to ask and respond to questions with current and past learners.

One special tool that Ray had begun to incorporate into his courses in the Fall 2013

semester was the use of Google Forms to collect regular feedback from trainees on various affective points related to his teaching, such as whether they felt safe to express their opinions in class. In August 2013, he noted that Google Forms was something he was excited to try as a way of determining affective factors during the upcoming semester. He said he had selected Google Forms for this, as,

> I read the ELT blogosphere and Twitterverse, and a great many G+ discussion forums and educational technology websites, so I'm familiar with a lot of tech tools for educators. Google Forms is one of Google's most popular services. A couple of years [a]go I used Google Forms to get participant feedback on our pilot video reflection project, and again the following semester for a before and after survey on learner beliefs about teaching and learning. Seems like the way to go. Socrative is another possibility. (Ray, email, August 2013)

5.2.6 Ray's Uses of Technologies to Facilitate Learner-Content Interactions

In their examples of technologies that facilitate interactions between learners and content, Lou et al. (2006) include web-based teaching systems, streaming videos, and podcasts. They further divide these into static versus dynamic categories, with dynamic tools being ones that can adjust to learners. Ray used a variety of static 21st-century tools to facilitate interactions between trainees and the content they were learning. He added Web 2.0 to his PowerPoint presentations by incorporating links to Youtube videos or webcasts that trainees could later access. He designed projects around the use of Google Circles so that trainees could see content created by other learners. Although textbooks for trainees were distributed as spiral-bound handouts, Ray used SugarSync as a sharing depository for the large amount of readings that the international students had.

5.2.7 Ray's Uses of Technologies to Facilitate Learner-Learner Interactions

A number of asynchronous and synchronous tools can be used to join learners to other learners, including wikis, discussion forums, or blogs (Lou et al., 2006). Outside of face-to-face real time interactions, the Google+ Circles (which, at one

point in the semester, Google changed to “Communities”) were the primary links among teacher trainees in CU’s General Program. Through these Communities TEs uploaded videos that they had taken of the trainees’ required in-class micro-teachings (short lessons “taught” to other teacher trainees in the class). Once the videos were posted, other trainees gave feedback on them, the trainee-presenters wrote web-based reflections, and “CRUCIALLY FOR THIS SOCIETY, pen-paper, more private reflections” (Ray, email, Nov 15, 2015). However Ray noted that in addition to the micro-teaching posts, trainees would post other information. He said that it varied “by class and context and student. Some posts are required. In addition to those, voluntary posts happen, often in flurries, sometimes sporadically, it just depends” (Ray, email, August 3, 2013).

In 2013, Kakao Talk, a South Korea-made free messaging app, had become one of the most widely used communication applications in the country. As this advanced text-messaging app required only a mobile phone number and a smartphone, most smartphone users (100% of Ray’s trainees, according to him) had it and used it in lieu of text messages. It could incorporate *emojis* (symbolic pictures) and allowed for the creation of multiple chat rooms. A sister app, Kakao Groups, allowed entire groups to be formed that could instantly share information. Ray told me that some of his classes had formed Kakao Groups for inter-learner communication, but that he was not a part of these. In a November 15, 2015 email Ray noted that “students use these as backchannel options” in Hangeul/Korean. Instead, he used the instant messaging function of Google products to communicate with trainees.

5.3 The Case of Jeff

5.3.1 Description of Jeff: “Calm, Soulful Negotiator”

Jeff, a North American in his early thirties described by Dr. Cho as a “calm, soulful negotiator” (Opening Ceremonies, August, 2013), had joined CU’s team of TESOL-TEs seven years (14 semesters) prior to the Fall 2013 semester. The coordinator of the Second Language Acquisition (SLA) section of the General Program, Jeff had a

profound interest in SLA and, in addition to teaching it, was conducting research in this area as part of the PhD he was pursuing concurrently to his work at CU. Jeff held an undergraduate degree in elementary and YL education, a master's degree in TESOL, a certificate for teaching Business English, and a North-American based K-12 teaching licence in ELT. Except for a short stint as an intern at a North American university, all of Jeff's EL teaching employment had been in South Korea, spending three-and-a-half years as an EL university lecturer at universities, with some work as an English editor and high school teacher prior to becoming a TE of in-service teachers at CU and moving on to the PRESET program. He was a member of both an international and a national TESOL association. Jeff spoke some Korean, and his research focused on Korean-L1 speakers' L2 acquisition of a component of English grammar.

In the Fall 2013 semester Jeff's workload included two sections of the SLA course for Korean trainees, one Writing class, and one English language class for first-year undergraduate students in CU's regular English program. He was also the coordinator of the SLA program.

5.3.2 Jeff's Electronic Devices and Hardware

Jeff said he had "'always been kind of into, uh, computers and, uh, tech and software" (Interview 1, August 2013) and was a "pretty early" adopter of technologies (Interview 4), chuckling that the number of devices he owned "depend[ed] on [his] wife" (Interview 4, December 2013). He had a number of electronic devices to assist him in his work. He had the latest version of a Samsung smartphone that he had bought as soon as it had come out, and just the year before he had the very first generation of a Windows hybrid tablet/laptop computer when it was new on the market. He also used a desktop computer at home and had added a second monitor to his standard office computer.

5.3.3 Jeff's Uses of Technologies for Teacher Educator-Teacher Educator Interactions

Jeff actively used a number of 21st-century online services to connect to other TEs.

First, in the spring of 2013 he had created his own Wordpress teaching blog. Here, on a bi-monthly basis, he posted detailed descriptions and rationales for teaching ideas he was trying, linking them especially to his key interest of SLA. He also engaged in asynchronous written question and answer responses to his ideas. A commenting teacher, for example, asked about Jeff's thoughts on literature circles for different age groups (Jeff, blog, spring 2013). Jeff's blog was linked to over fifteen other teaching blogs and podcasts that he followed, with titles including terms such as "EFL," "TESOL," and "ELT." He also used a pingback system (automatic notifications from other blogs) to observe when his blog was being commented on in other blogs linked to his.

Through these interactions with other teachers Jeff incorporated teaching ideas, including 21st-century elements, into his practice. On his personal blog Jeff wrote that his Academic Reading Circles project was based on a blog post by Teacher X, a stranger. Jeff had told me that after he had first posted, another poster had said he should look at Teacher X's page and created a link to that page, creating a 'pingback'—a link back to Jeff's own page (Interview 2, September 2013). As a result of his interactions through his blog, Jeff ended up in contact with an unknown educator who had used a similar idea and, as a result, made some adjustments in how he used Academic Readings Circles with his SLA trainees. In connection with his blog, Jeff posted and followed other educators with thoughts about teaching and learning on social media sites Twitter and Facebook, but his biggest connection was through Google+ communities where he was on a number of educational discussion tags/lists, including ones about SLA and about educational technologies.

5.3.4 Jeff's Uses of 21st-century Technologies to Facilitate Teacher Educator-Learner Interactions

Jeff had integrated into his instructional practice numerous online ways of interacting with his learners. He was a very active user of Google+ and had used it as an LMS with his own trainees for a semester before bringing it up at a meeting for other CU-TESOL instructors, after which point it was adopted more widely and eventually brought into the program as a required component. Jeff accessed his

Google+ community at a minimum on a daily basis, posting on various topics in SLA, ELT, and teacher training, and was notified by a beep/buzz and message on his smartphone whenever a trainee posted him a question. I asked Jeff if he found himself constantly checking messages, and he said he checked them as they came and responded quickly if it was related to Google+, as "the questions are really short and specific. If I get a long email, you know, sometimes I sit down and write it, but other times I, I'll wait a little bit" (Interview 1, August 2013). I asked Jeff if he ever drew a line between personal time and work, and he said that he told trainees if the green dot indicated availability next to his name in Google+, they could send him messages. The green dot was there "pretty much anytime" (Interview 1, August 2013), and if he really needed to be unavailable, he changed his status to the red dot, but that that was "usually never" (Interview 1, August 2013). Jeff said his trainees did not contact him "that much," so although he did not have to be available at all times, he indicated that he was and felt that they appreciated "the gesture" (Interview 1, August 2013).

Jeff also used Google Forms to survey trainees regarding their feelings about the academic reading circle project in preparing for this upcoming semester. He shared the results of these in his blog after the Fall 2013 semester had finished, noting that he felt that educators needed to survey all modifications to curricula in order to discover learner engagement levels and perceptions (Jeff, blog post, January 2014).

5.3.5 Jeff's Uses of 21st-century Technologies to Facilitate Learner-Content Interactions

As the coordinator for the SLA teaching group, Jeff added a 21st-century technology spin to a prior paper-and-pencil collaborative task by turning an academic reading circle task, previously done collaboratively with paper and pencil, into an online discussion among learners. Based on the main content of the SLA course, a series of challenging readings on SLA chosen by Jeff and earlier curriculum designers, groups of trainees took on different roles each week (e.g.: leader, summarizer, etc.) to create and answer comprehension questions about the content in an online setting viewable by other members of the class.

5.3.6 Jeff's Uses of 21st-century Technologies to Facilitate Learner-Learner Interactions

Along with the key focus of the CU-TESOL Program on the learning of TESOL-related content, another goal for the program, and even more so for many of the trainees, according to a presentation by 2011 presentation by Dr. Cho, was language improvement. Jeff used the Google+ community function to foster both course-related interactions, such as with the academic reading circles, and social learner-learner interactions outside of the class. He recounted an interaction with a trainee:

> The other day a student says, uh, 'I have some questions for the SLA homework. What should I, how should I answer the following questions,' you know? One and two. And I, she posts, I answer. Everybody sees it. Uh, some students post links. Like in [Cross-cultural Communication], you see here, each post has a category [K: Um hmm?]. In SLA. .....So, uh, most of the, most of it is uh course-related. But I try to tell them to get more, uh, bring in some personal aspects.

I asked Jeff why he wanted to see more personal interactions, and he said he thought it would be nice for trainees, "just to talk about things not related to the course in English" (Interview 1, August 2013).

5.4 The Case of Luke

5.4.1 Description of Luke

Luke, a North American in his early thirties, had already taught in the CU-TESOL Program for a total of ten semesters (five years) by the time the Fall 2013 semester started. He had spent six semesters working exclusively with in-service teachers and had transferred to the PRESET General Program four semesters prior to the Fall 2013. Before that, while he was studying for his master's degree in TESOL, Luke had taught an undergraduate SLA class for pre-service teachers. His teaching career also included a year as an academy EL teacher in Korea and two years as a secondary

school teacher in North America. In addition to his master's degree, Luke held an undergraduate degree in journalism and communications and, like Jeff, was in the early stages of a PhD program in the Fall 2013, with a focus on SLA.

During the Fall 2013 semester Luke was teaching SLA to one Korean group and one international group, one section of a CCC course, one Writing class, and one Practicum class. During the first weeks of the semester he also helped with the INSET program, which was short on staff.

5.4.2 Luke's Hardware and Devices

Luke said that while he knew about many technologies, he was a late "but not so late" adopter (Interview 4, December 2013). In addition to the standard computer he had for work, he had two personal electronic devices: an aging but serviceable three-year-old laptop and a newer iPhone smartphone. He lived close to the university and considered his assigned office desktop and his laptop "basically both [CU] computers" (Interview 1, August 2013), as he had set them both up with SugarSync and the Google platforms used by the rest of the TEs in the CU General Program.

5.4.3 Luke's Uses of Technologies for Teacher Educator-Teacher Educator Interactions

To communicate with other TEs at CU, Luke used the standard Google+/ SugarSync combination installed by Ray. (Interview 4, December 2013). However, he also mentioned that he had a Facebook page he had created just for work in order for other educational professionals or former students to contact him. He said he had set it up because people were finding him on his real personal Facebook account, and that he "wasn't comfortable with that," not wanting to be "a professional teacher 24 hours a day" (14-Dec-2013). He used the Gmail address given by CU to set up the account and would respond if people had found him that way.

Luke stated that he "barely" (Interview 4) used social media such as Google+ or Facebook to produce content or engage in chats with other TEs or even in his

private life. However he did regularly check what others had posted. About Facebook, he said,

> a little bit. I mean I probably check it probably every day, but don't spend more than five, ten minutes on it. It's just kind of a routine: check e-mail, check Facebook, check CNN, you know. (Interview 4, December 2013).

During the Fall 2013 semester Luke did share some education-related videos that other instructors could see, comment on, and re-share. A video he posted about creativity, for example, was re-shared on the Facebook page of Mark, the coordinator of the YL program. However, most of Luke's interactions with other educators and TEs took place as face-to-face encounters in the offices and hallways at the university, in his doctoral classes, and to a lesser extent, in the two conferences he attended and at which he presented during the Fall 2013 semester. He told me he collaborated with other instructors in the group about his courses on SLA content and had weekly meetings with Ray and Gina (Luke, Interview 4, December 2013).

5.4.4 Luke's Uses of 21st-century Technologies to Facilitate Teacher Educator-Learner Interactions

Luke used a combination of Google products to interact with trainees. He used the basic Google+ page for shorter posts. As moderator for his Google+ group on SLA for international students, he had eighteen original posts over the semester (with more posts in response to others' comments) containing items such as classroom management notices, video presentations by big names in ELT, extra articles and booklets on SLA, and announcements about upcoming conferences. He also used it as an LMS to organize projects: "Please post your pairs or if you're working individually on the Learner Language project…" (November, 2013); as a place for reminders and clarifications about instructions: "Hi everyone, The Language Learner Project is due week X, November X. Sorry for the confusion"; to publicly check in on and prompt questions from the group members: "Hello everyone, I haven't received any questions or comments about the midterm essay due Week X. I hope that

means you're all on top of it, not that it slipped your mind" (October, 2013); and to offer tech help: "If you can't upload your video for whatever reason, email it to me. I'll upload them. You can comment on the video" (September, 2013).

Like his colleagues, Luke used email for individual communication. He would "jokingly" tell trainees, "if you email me at 2 a.m., and we have class 9 a.m. the next day, I'm not going to answer. You know, I'm just going to, I'll just see them in class" (Interview 2, October 2013). Luke said that he "doubted" he had ever answered an email late at night unless, "there was like something I thought was important, or something" (Interview 2). However, Luke pointed out that he found it useful to employ questions as a diagnostic, pointing out that if a trainee he had perceived to be high performing in the class asked a question to which he thought everybody should know the answer, he would post it on Google+ for clarification. He said he would answer the original student's email and then would copy and paste it to the board, noting, "here's something that I thought was unclear" (Luke, Interview 2, October 2013).

Along with the dedicated Facebook page he used to connect to alumni, Luke also used the Google+ group function for follow-up interactions and some course promotion after trainees had completed the course. In a 2014 post made to the same International Group of the SLA course he had taught, he wrote on behalf of CU to ask trainees to recommend the program, and in the resulting posts engaged in conversations about former trainees' lives post-graduation.

Online social language in EL classrooms is often informal (Dalton's, 2009). In his short Google+ and professional Facebook posts, Luke maintained a professional but friendly tone in the initial post ("Hi everyone,") and would add in bits of conversational, informal language in responses to posts ("haha," "yeah").

Luke also used Socrative, the smartphone-enabled real-time student response system introduced by Jeff. He employed it to check trainee comprehension during the class.

5.4.5 Luke's Uses of 21st-century Technologies to Facilitate Learner-Content Interactions

Following Jeff's lead for the SLA courses, Luke had set up and moderated a Google+ integrated Blogger blog for trainees in his SLA classes as part of the Academic Reading Circles project. He also used it with his international trainees as a "place to have more in-depth discussions than on Google+" (August, 2013). Here, he posted weekly information about the upcoming course content and assignments and organized a slightly less structured version of the Academic Reading Circles used in the SLA course, encouraging trainees to engage more deeply with content.

As with all of the TEs who had lectures with the International Students Group, Luke shared materials for his SLA class via SugarSync. He would occasionally cross-reference on the Google+ group page when he had added key files to SugarSync, such the pdf versions of one week's Prezi presentation files.

5.4.6 Luke's Uses of 21st-century Technologies to Facilitate Learner-Content Interactions

For Luke, it was "all Google" (Interview 4, December 2013) when it came to online learning management in his courses. The Academic Reading Circles on Blogger were meant to promote learner-learner written discussions outside of the class. However beyond the Academic Reading Circles and comments on video uploads of micro-teaching lessons, Luke seemed to steer clear of more specific tech-related encouragement of learner-learner interaction.

5.5 The Case of Gina

5.5.1 Description of Gina

In her mid-thirties, Gina was the only female TE in the TESOL department at CU. Her twelve-year teaching career had always been in ELT. She had attained her CELTA certificate in 2000 when she also graduated with a bachelor's degree in Hispanic Studies, and she received her master's degree in TESOL in 2009. Prior to becoming a

TE her instructional experience included preschools, high schools, camps, universities, and culture programs in North America, Asia, and Europe. She had also once served as a 'college success' coach, providing one-to-one face-to-face instruction for online university students on how to use time management and scholarly motivation tools. Her teacher training experience also involved teaching short TEFL certificate courses at a university in North America. The fall of 2013 semester was Gina's seventh (3.5 years) at CU, and she was the coordinator of the CCC course. She had been a coordinator in the program for two years. In the fall of 2013 her instructional workload included two sections of the Cross-cultural Communication Studies class (one Korean group and one international group), a Writing class, and a YL-TESOL class. She was also the coordinator for the CCC studies group.

5.5.2 Gina's Hardware and Devices

Compared to her colleagues and to other educators in South Korea in 2013, Gina's primary personal collection of electronic devices used for instructional preparation was relatively modest, consisting of only two items: a five-year-old four-hundred dollar "very slow" (Interview 2, September 2013) laptop for home and office use and an i-Pod Touch, a handheld portable electronic device on which she could take photographs, play games, and store digital audio and video files. While not a smartphone, the iPod Touch could connect to the Internet when in a wi-fi zone. She also possessed a flip-style mobile phone that was not Internet-enabled.

However, over the Fall 2013 semester, Gina did make one electronics hardware purchase of an item that was perhaps surprising for someone with few devices and who described herself as "horrible with computers" and "terrible with electronics" (Interview 2, September 2013): a remote-control microprocessor robot that moved through digital instructions that Gina had coded herself. She told me she had bought it as a "fun way to learn coding" (Interview 2, September 2013), potentially to later build her own teaching apps.

5.5.3 Gina's Uses of Technologies for Teacher Educator-Teacher Educator Interactions

Gina was actively engaged in field-related communication with TEs outside of CU, and on my first day meeting with her, she had just finished a face-to-face meeting in which she shared pedagogical ideas with an outside instructor of cross-cultural communication. She also used a number of asynchronous Web 2.0 products to engage with experts and instructors outside of the university in her capacity as a teacher-learner, although she did not regularly create and share Internet-based content made explicitly for other instructors. She regularly searched on Google and Youtube for online tutorials (making a Choose-Your-Own-Adventure book; improving PowerPoint usage; making apps), posted occasional teaching-related links on Google+, and was a regular reader of Edublogs, a blogging site specifically for educators. Having completed an MIT-produced MOOC on coding, she was looking into some other online course possibilities.

It has been said that educators are always planning (Woodward, 2010). Gina told me she subscribed to a number of educational Youtube channels that she used as catalysts for potential teaching ideas. Among her stated favourites were science and multi-disciplinary project-based video collaborations of teachers and students. These included Smarter EveryDay, a video site in which a teacher tested theories related to pop culture, and Vlogbrothers, a site where teachers involve their students in interactive projects with the online community. Gina wrote:

> I see no reason why this could not also be done in ESL/EFL learning…. Now that I think about it, that would be an interesting angle to take on it if I ever wanted to make videos. Content-based vids (about something I'm passionate/excited about), but with a bent towards serving an SL/FL viewer base… (Gina, email, Nov 11, 2013)

Gina also said she followed "a lot of" educational blogs but "not so many in the language teaching profession" (Interview 3, October 2013).

5.5.4 Gina's Uses of 21st-century Technologies to Facilitate Teacher Educator-Learner Interactions

In addition to using the required set of SugarSync and Google products used by the faculty of the General Program to communicate with trainees, Gina had followed the lead of some others teaching in the YL group and set up a class-specific Blogger website just for the trainees in her YL course. Here, in addition to communicating broadly through announcements and through the posting of course content and links, she hosted asynchronous textual discussions with threads started by her and by YL trainees.

With her General Program trainees she primarily interacted online through either email or Google Communities. Although she had access to the widely used messaging app Kakao Talk through her iPod Touch, she did not use this for communication and kept her phone number private from trainees.

5.5.5 Gina's Uses of 21st-century Technologies to Facilitate Learner-Content Interactions

Gina used static 21st-century technologies to link learners with content. She mentioned that Youtube videos were an integral part of her pedagogy. She had made a specific Youtube channel dedicated to hosting collected videos for the Cross-cultural Communication courses ("I use A LOT of youtube (*sic*) in my classroom" (email, December 21, 2013), and had linked these into the PDF files of the course. She mentioned that videos were an especially useful revelatory tool in her cross-cultural communication classes:

> I generally never show more than 23 minutes of any clip but have found that it has profoundly impacted how deeply students internalize [cross-cultural communication] concepts, in particular. It's one thing for the instructor to explain how culture can affect pragmatic usage of language and quite another to see a real person talk candidly on video about cultural misunderstandings and how emotionally affecting these

> misunderstandings were for them. I've found it to be a powerful tool, especially in my teaching context here in Korea where the class demographic tends to be quite homogenous. (Gina, email, Dec 21, 2013).

A goal of the YL program was to enhance trainees' confidence in delivering instructions in English. With her YL PRESET group, Gina used the voice recording website Voxopop to have trainees practice their classroom instructional English by recording a change in "their own unique rap/song style" (Gina, email, September 9, 2013).

5.5.6 Gina's Uses of 21st-century Technologies to Facilitate Learner-Learner Interactions

As the coordinator of the CCC course, Gina made limited use of mandatory learner-learner interactions through the Google Community platform. She also had no requirement for online learner-learner interactions in the YL course that she taught. However, she did incorporate her knowledge of online tech tools into the pastoral care aspect of her teaching. One example was with a trainee who would come to her office for questions throughout the semester and whom Gina directed to an online writers' group:

> I gave her a few websites for free online courses and MOOCs and directed her to meetup.com and to search online writing courses/groups and to come back the next week with one she wanted to join/learn more about. She came back a few weeks later excited about [a local writers' collective] which she had found through Meetup, and already attended one event. (Gina, email, Dec 21, 2013)

In this case, Gina combined her social media and pedagogical knowledge to facilitate an extra-curricular EL learner-learner encounter for an aspiring writer. At the same time, she introduced this teacher trainee to a method of extending teaching reach beyond both the physical and temporal constraints of the classroom and the office.

5.6 The Case of Ben

5.6.1. Description of Ben

Ben, a TE in his early thirties from the Australia-Pacific Islands region, was the newest recruit to the CU-TESOL Program having just joined for the Fall 2013 semester. Ben held an undergraduate degree in political studies, a master's degree in TESOL and a CELTA certificate. During the Fall 2013 semester he was also working on modules to complete his certification as a Google Certified Teacher, and in August of 2013 he participated in a Google Apps for Education Summit.

Ben's eight years of experience in TESOL were all Korea-based and included three years as an EL teacher, with two years at a public elementary school and one year at a public middle school, before moving on to leadership and teacher training positions. His prior work as a TE was as an INSET trainer at various national universities of education. He also worked as a supervisor and teacher at a private EL academy, which included tasks such as hiring new teachers and conducting faculty observations and evaluations.

In addition to his education work, Ben had spent a year working as an ICT consultant for a university. His tasks there included designing ICT solutions and troubleshooting for the university library.

Ben did numerous volunteer activities related to both ELT and to new technologies. He was an executive in a local ELT professional organization. He also wrote a monthly column on technologies and gadgets for one of South Korea's English-language magazine and was a radio commentator and podcaster on the topic.

Ben worked exclusively in the YL side of the program. His courseload included one section of a course on EL Teaching Approaches, one course on Curriculum, two hours a week leading a demonstration class at a kindergarten, and one class in a shorter YL program for Learning and Playing in Early Childhood.

5.6.2 Ben's Devices and Hardware

Ben was a 21st-century technology enthusiast, describing himself as a "premature" (rather than early) technology adopter (Interview 4, December 2013). He had a number of electronic devices that he used for his planning and teaching, many of which he had bought throughout the Fall 2013 semester. He was very conscious of his purchases and was able to tell me off the top of this head the years and makes of his devices. . By December, 2013 he had three active smartphones: a brand new 6.4-inch 'phablet' smartphone which had been on the market for only a month and was the largest smartphone on the market, a Galaxy Note 2 smartphone, and a smaller Experia phone which he kept as an emergency back-up phone. His primary computer at home was a 13-inch Apple Macbook laptop from 2011, "one of the older ones, it's time for an upgrade," (Ben, Interview 4, December 2013). He had connected that laptop to a 30-inch monitor at home. He also had a refurbished first generation Chromebook —a tablet/laptop combination that he purchased in December 2013, as well as a Samsung laptop with a detachable table screen and electronic stylus. In addition he had an older netbook that he had "hacked" (Interview 4) in order to run the Chrome operating system that he preferred. An additional 15-inch laptop he used exclusively for his volunteer work and shared with other executives of that organization. Ben was also a photography aficionado and had eleven cameras, including four digital ones. At home he had a first-generation Apple TV "which I've hacked into, um, um, basically a media server" (Interview 4). In addition to his large phablet phone and an Android-based tablet, Ben owned an iPad 2 tablet which he used extensively throughout the Fall 2013 semester. At the end of the Fall 2013 semester he bought a colleague`s iPad 4 with retina display.

Ben considered having his own storage crucial and owned a Drobo personal cloud server, "so I've got four terabytes of space sitting at home." (Interview 4). He explained that when he downloaded a file online, it would go straight into the network-attached storage which he could access without being at a computer (Interview 4). Ben was "brand-agnostic" in his devices because he primarily worked in the cloud (Interview 1, August 2013). Although he generally wore a regular digital

watch to class, Ben also owned a smartwatch, which he was learning to use for teaching. Moreover he enjoyed video games and owned a few older PlayStation devices, although he didn't seem to use these in his work.

Ben wistfully conveyed to me his device wish-list for both personal use and pedagogic purposes. He hoped for a new MacPro desktop, "the nice round black one, with a, uh, 30-inch Apple display" (Interview 4), a new 15-inch MacBook Pro notebook, and a new camera, a Sony A7R. However at the very top of his list was Google Glass, the then-new wearable computer device only available to selective customers by special order directly from the United States. A few months after our discussion, Ben went on to purchase one and be in the first cohort of people in South Korea to have the device and to employ it in his teaching.

5.6.3 Ben's Uses of Technologies to Facilitate Teacher Educator-Teacher Educator Interactions

In the Fall 2013 semester, Ben taught exclusively in CU's YL specialized branch of the TESOL Program and, unlike Ray, Gina, Jeff, and Luke, had no courses in the General Program. In the YL program, the same SugarSync/Google+ system was not in place to connect TEs and trainees and to share information.

Ben had many interactions with the veteran TEs in the program but most took place as face-to-face meetings and discussions. He shared lesson plans and curricula with his coordinator, Mark, and with other teachers through SugarSync, with more detailed written instructions handled through email. He would then meet to discuss his lesson plans with a TE who taught another section of the same course (Interview 1, August, 2013).

Although there was no dedicated Google+ group just for the TESOL-YL PRESET group, Ben was on Google+ and was part of CU-TESOL's wider Google+ group which connected him to instructors in the General Program and to other TEs. Ben noted that among the YL-TESOL PRESET program he did not think there was "a particularly strong sort of technology bent" (Interview 4, December 2013).

However, Ben was heavily connected online to TEs outside of CU. He obtained news about educational and educational technology techniques by regularly following blogs such as Verge (a tech blog) on a blog aggregator. He was also linked via Facebook to numerous educators and would obtain teaching ideas from their posts:

> A lot of the- the sort of stuff that friends, some of whom I've only ever met once in my life, will post a link, you know, oh I use this in my class, or this looks interesting for my class, you know. (Interview 4, December 2013)

Ben was a consumer of ELT-related online content and used Google+ and Twitter to follow ELT experts such as Scott Thornbury and Jim Scrivener. However he was also an active content contributor. He engaged in a video-webcast discussion about technologies in Korea and created a webcast for his professional ELT organization. During the Fall 2013 semester he had 51 posts on education-related topics from his public Google+ account, many of which were links to videos or blogs about technology in education.

5.6.4 Ben's Uses of 21st-century Technologies to Facilitate Teacher Educator-Self Interactions (Reflective Purposes)

Ben carried his iPad tablet almost everywhere at work. There he wrote his private TE reflections; he said he had been keeping track of his reflections "on and off" this way since he had taken the CELTA course (Ben, Post-observation 1, August 28, 2013). In the Fall 2013 he was attempting to return to more reflective practice; "you know new job, new start, new semester." (Ben, Interview 1, August 2013). Ben also used WordCloud, a visual-recreation app, to reconfigure the thoughts in his written teaching reflections.

For classroom management, Ben used an app called TeacherKit, saying it allowed him to organized seating, take attendance, input grades, and make notes on behaviours (it was designed for K-12 teachers). He said an advantage of the app was that it helped him remember trainees' names (Interview 1, August 2013).

5.6.5 Ben's Uses of 21st-century Technologies to Facilitate Teacher Educator-Content Interactions

Ben kept his course content, LMS, and lesson plans in his personal cloud, accessing it during lessons primarily through his iPad. "You know I had it on my iPad, it's constantly in this hand" (Interview 1, August 2013), he told me in recounting a story of showing his lesson plan to his trainees during a class. Indeed, when I observed him in classes, Ben let go of his iPad only to write on the board.

5.6.6 Ben's Uses of 21st-century Technologies to Facilitate Teacher Educator-Learner Interactions

Ben gave his trainees his personal email address for connection outside of school or office hours. However despite this, and despite having attended a Google Education Summit and being active in Google+ for interactions with educators outside the program, Ben had elected not to use Google products for an LMS. Instead he had opted to use a free-of-charge dedicated educational website technology called ClassJump as the integrated class website, discussion board, and gradebook. Here he posted documents and messages and collected and responded to trainees' documents and messages.

Ben kept in frequent electronic contact with trainees, although he "never let a student near Facebook" (Post-observation 1, August 9, 2013). Ben used a system of special beeps to keep track of notifications from different groups in his life: "Email, Facebook, girlfriend, Hangouts, and generic everything else, like ooh that one's interesting, what's that? I can't remember what it is, I have a lot. So yeah, different tones for different things" (Interview 2, October 2013). One of these tones notified him of messages sent through his LMS. Ben told me that ClassJump had a messaging function in it for trainees to contact him, linking to his personal email with "pings." He explained, "two, three classes had an assignment due at midnight on Monday night, so yeah from about 11 to 1, my phone was [*makes beeping sounds*] (Interview 2, October 2013). He noted he would count these automatic notifications just to see if trainees had completed the assignment (Interview 2, October 2013).

Ben used his iPad for classroom management purposes during the class, including for such tasks as jotting down group names or taking attendance. He also said he tried to avoid collecting paper from students (Post-observation Interview 1, August 2013), preferring to use his LMS for assignment submission whenever possible.

5.6.7 Ben's Uses of 21st-century Technologies to Facilitate Learner-Learner Interactions

Ben's courses contained no required use of 21st-century technologies for interactions among trainees inside or outside of class time. For example, although there were partner projects in his classes, trainees were not made to write responses online through ClassJump. Instead Ben let them devise their own communication systems outside of class time; these usually took the form of a Kakao Talk group.

5.6.8 Ben's Uses of 21st-century Technologies to Facilitate Learner-Content Interactions

The main materials for Ben's courses were in the form of in-house produced paper handbooks. Ben also used some PowerPoints during classes to project content and would share these on ClassJump after he had shown them in class. While he opted to write with markers on the white-board instead of using PowerPoints, he encouraged the trainees to use their smartphones to take pictures of the board before he erased these.

5.7 Chapter 5 Conclusion: Research Question #1

As shown in Table 5, the five focal participants in this thesis both corresponded and differed in their incorporation of 21st-century technologies into their instructional practice and in the types of interactions for which they used 21st-century digital technologies. While all of the participants used Web 2.0 tools, they did not all use the same ones. In the General Program, two dedicated online sharing systems had been officially set up among the TEs, while in the YL program, no such system was in place. Moreover even when TEs taught the same courses, they chose to use Web

2.0 technologies in diverse ways both inside and outside the classroom. While one participant, Ben, engaged in reflective professional development online but as per the recommendations of Farrell (2011) chose not to share these reflections publicly, Ray and Jeff used public professional blogging as a means of professional development (Ewins, 2005). Finally, although an LCD touchscreen was installed in one of the classrooms, this was not used by any of the educators, similar to findings on interactive whiteboards from Hall and Higgins (2005).

Table 6 Comparison of TESOL Teacher Educators' Technology Uses

Par-tici-pant	Gen Pro-gram LMS	YL Pro-gram LMS	Smart-phone?	Sys-temati-cally wrote teaching reflec-tions?	Shared curriculum materials files via	Used uni's touch-screen board?	On-line con-tent crea-tor?	Misc.
Ray	Google +	None	Yes	Yes (public: blog	SugarSync (Gen)/ emails (YL)	No	Yes	Implemen-ted video sharing reflections; avid social media user; tech background
Jeff	Google +	N/A	Yes	Yes (public: blog)	SugarSync	No	Yes	Implemented online alter-native to paper + pencil for SLA course
Luke	Google +	N/A	No	For this thesis	SugarSync	No	No	Checked Google+ frequently
Gina	Google +	Blogg er	No	For this thesis	SugarSync/ emails (YL)	No	No	Used iPod/wifi combo in lieu of smart-phone; altern-ative school grad
Ben	N/A	ClassJ ump	Yes	Yes (private: iPad)	Emails (YL)	No	Yes	Self-described technophile with many devices; wrote for tech publications

CHAPTER 6: TESOL TEACHER EDUCATORS' COGNITIONS IN RELATION TO THE PEDAGOGICAL PURPOSES AND EFFICACIES OF 21ST-CENTURY DIGITAL TECHNOLOGIES IN THEIR INSTRUCTIONAL PRACTICE

6.1 Chapter Overview

Chapter 5 detailed the professional and technical backgrounds of the TEs who comprise the five key cases of this study, and presented findings from the data regarding their uses of 21st-century technologies in their instructional practice. In this chapter, I aim to answer Research Question #2 by presenting findings from the data on cognitions of each participant in relation to the pedagogical purposes and efficacies of 21st-century digital technologies in their instructional practice as TEs. As practices and cognitions intermingle and influence each other (Borg, 2003, 2006; Woods & Cakir, 2011), the findings on cognitions refer back to data on specific uses delineated in Chapter 5. However, as cognitions relate to what is in the minds of TEs and are therefore not bound by the same concreteness of observable behaviours, the discussion of cognitions is broadened here to encompass what TEs said they believed in addition to what they did. In describing the cognitions of the participants, I refer to Koehler and Mishra's (2009) TPACK framework and Borg's (2015) definition of cognitions, which includes what teachers "think, know, and believe" (p. 1). In this chapter, while I attempt to isolate participants' cognitions from the findings on factors perceived to have influenced cognitions and practices (discussed in chapter 7), their inevitable overlap means that influential factors are at times introduced in this chapter. This chapter is divided by participant, and further categorized by overarching statements and quotations (Saldaña, 2008) by TPACK–related themes.

6.2 The Cognitions of Ray in Relation to the Pedagogical Efficacies and Purposes of 21st-century Technologies in His Practice as a Teacher Educator

6.2.1 Ray's High Technological Content Knowledge and TPACK

Early in our meetings, Ray said he had " always been a technology fan" (Ray, Interview 1, August 2013) and that he had inaugurated his career learning to use technologies. He had a high level of TK, evident in his Microsoft Servers certification and his four years of employment as a multimedia lab creator and educational technology coordinator for a university's language laboratory. He said he enjoyed "self-learning stuff" (Interview 4, December 2013) related to technologies, and felt confident with technology troubleshooting, finding his own solutions "90% of the time" (Interview 4, December 2013). Just before our second interview began, I watched Ray assist Gina in figuring out a solution to a problem with editing in Google Docs. Although Ray did not immediately know what the problem was, he went through a series of questions with her and used a Google search to find a solution within five minutes. Ray mentioned that at the start of his career, living in early-1990s Eastern Europe, he had had to work alone to set up a modem and use the newly available technology of email on an old, non-intuitive computer to contact his mother (Interview 4, December 2013).

Ray exhibited high TPACK self-efficacy along with his high TK. He responded that he possessed all of the "33 Digital Skills Every Teacher Should Have" (Educators Technology, 2011) from a list I provided, and I observed many of these in his online and classroom work, including in the way he set up an LMS and engaged with trainees online. He stated he knew how to make good use of technologies even when they were not his preference. On the use of online educational LMS, which he found inferior to general-purpose social media, he expressed this confidence, self-identifying as "probably among the masters of the world in terms of adapting them and making, making real learning happen despite them, or you know exploiting them for those purposes" (Interview 4, December 2013). He strongly agreed that he

had technologies that enhanced the teaching approaches and students' learning for a lesson:

> Absolutely, yes. It's what I love to do. In fact, yes, I mean considering that a pencil is technology and that we don't use them for the most part because there are better tools. (Interview 4, December 2013)

Ray also said he felt very capable in integrating TESOL, technologies, and teaching approaches, and I observed that he based his signature TESOL pedagogies (Shulman, 2005) around technologies. As an example of this, he pointed to the decisions made in the video project related to trainees' microteachings. In the spring 2013, Ray had written an extensive rationale about the project in a conference proceedings report highlighting pedagogical goals he felt that video-based self-observation and critique could address, focusing on the utility of microteachings for feedback and reflection and the strength of video-taped microteaching reflection projects in getting trainees themselves to make full use of the growth opportunities of mock teaching.

6.2.2 Technologies as an Integral Option in Ray's Toolkit as a Teacher Educator

While scholars have noted that some educators view technologies as a type of add-on or extra option in their practice (Bauer & Kenton, 2005; Hardy, 1999; Levin & Wadmany, 2008), Ray conveyed his conception of digital technologies as an integral part of a general toolkit that could aid his delivery of quality services as a TE. In a reflection written weeks before I had revealed to the study's participants that the underlying focus of the research was on 21st-century technology use and cognitions, Ray sent me a copy of his pre-semester goals, titled "Another semester begins":

> <u>Goals</u>
> Overarching:
> Continue to improve the Quality of Classroom Life
> (Allwright).

1. Participant discourse: synchronous & asynchronous, face-to-face and online, should all aim to construct interactive possibilities for positive change as people, users of English, teachers, and students.

Specific target area for Fall 2013

I want to be much more aware of how students are feeling and what they are thinking about the courses I am providing. In other words, I want to increase the number and type of participant feedback options.

Current options:
Public, semiprivate
or private G+ community posts
Private emails
Private meeting
Class discussions
Standardized course evaluations (2X semester)

New
Standardized: Google forms surveys (a variety of types, biweekly, anonymous,
MC & short answer)
Informal; my G_ posts inviting feedback (not anonymous)

Motivation
While generally students are quite pleased with my work, I still get (to my chagrin) comments that I am too aggressive/scary/hostile and I want to fin[d] out when these moments occur. Not sure how, but want to try.
(Ray, reflection, August 1, 2013)

In Ray's outline, digital solutions sat alongside analogue ones in support of a key goal: to work on "quality of classroom life." He cited Allwright (2003), whose

concept of exploratory practice for language teachers prioritizes quality of life for individual learners within a classroom. Allwright also views classroom practice as organic to teachers' and learners' lives, embracing the idea of a seamlessness of work life and home life for educators (Allwright & Miller, 2007).

Ray's intermingling of online and offline approaches in his potential methods was reminiscent of a spring 2013 blog post on reflective teaching he had written. He posted how teachers engaged in "talking/blogging/thinking" about their own work—in his wording, 'blogging' stood on equal footing as 'talking' and 'thinking' in reflective practice. This seemed to be a replacement of the more general and traditional term: 'writing.'

6.2.3 "Nobody Wins Unless Everybody Wins": A Tool for Collaborative Reflective Practice and Teacher Growth

Ray frequently referred to his belief in 21st-century digital technologies as a reflective tool. While some ELT scholars, such as Farrell (2008, 2013) consider teacher reflection best left as a solitary act, Ray conceived of teacher reflection as something that could be promoted through collaboration. He had been the friend and mentee of a famous professor whose theories of mediated discourse analysis and nexus analysis had shaped and helped crystallize Ray's thinking about an inexorable link between dialogical social discourse and practice. He also spoke frequently of Lave and Wenger's (1991) model of situated learning and of communities of practice. In October 2013, I had elicited from participants their thoughts on the ATE Standards (2008). Standard 1 makes reference to TEs keeping up with "best practices" (p. 1). Ray wrote that he,

> abhor[red] the promulgation (everywhere) of the myth of universal best practices of anything. Every suggestion is situated locally and cannot be generalized…..Teachers need to read, explore in their classrooms and write about what works or not for them, and other teachers need to read what other teachers write, reflect on it, explore and write…" (Ray, written response to ATE Standards, October 2013)

In the August opening ceremony for the CU-TESOL Program, each of the program's TEs spoke briefly while a screen behind them showed a selected quote. Ray's quote was, "Nobody wins unless everybody wins," a citation from rocker Bruce Springsteen. Ray even had the audience chant it in unison three times. I later asked Ray about what 'winning' looked like in this scenario. He replied,

> winning, winning is everybody discovers or learns to understand themselves. Uh, let me word this carefully and uh, succinctly. Um, [*sighs, speaking slowly*] every, every student should come away from the [Teaching Methodology] course or from the certificate in general with the ability to continue to develop their own, uh, identities both as teachers, and um, as useful, productive happy members of society. They should know how to do that by the time they leave here. (Intervew 2, August 2013)

Ray claimed that this belief in peer-enabled reflection in which learners gained knowledge through each other and not alone was crucial to his rationale behind the video reflection project. He had also published this idea in a January 2013 paper on the project. He explained that rather than simply having trainees record themselves on their phones and engage in peer reflection, the TEs had designed the project to be public in order to get trainees into the habit of viewing themselves and sharing with others, and to "get out of the egg box approach, to teaching that, you know, Harmer and those other guys will talk about" (Interview 4, December 2013). He was referring to the work of Jeremy Harmer (1991, 2008), who advocates collaborative teaching approaches that break down the 'egg carton' (Lortie, 1975) isolation of teaching activities in a walled classroom. In that interview, Ray also pointed to the goals of community language learning, the inductive learner-centred acquisition of teaching skills, and collaborative development as integral to the project, with two of these three goals being team-based rather than conducted primarily through individual growth. It should be noted that the word 'mirror' appeared often in Ray's writings on reflection and teacher growth. It was clear that Ray espoused and enacted some collaborative activities for teacher trainee growth through reflection.

Ray had begun the video reflection project by piloting it with the TEs in the CU-TESOL Program. His published paper explained how the TEs themselves needed to practice what they were teaching by openly reflecting and that the program's students required a view of teacher reflection "as a universal given of good teachers" (Ray, published paper, 2013). He wrote that TEs had to provide a "sincere model" of reflection." To model, he started the TE reflection process by sharing with his colleagues his blog and some video recordings of his classes, "warts and all" (Ray, published paper, 2013).

Ray also discussed the uses of class blogs as a prompt for community-based reflection not just among trainees, but for himself as a TE. He spoke about how a class blog with his international trainees had helped him to work through his thinking on cultural aspects in his courses with Korean trainees and students. He explained that in a previous semester, an experience with one writing group had been "just such a fail" before a technological solution had been brought about (Interview 1, August 2013). To Ray, the co-constructed nature of knowledge-building in TE learning involved the necessity of obtaining precise feedback from trainees, and he felt that 21st-century digital technologies offered a simplified, time-saving solution to this. He explained to trainees his rationale for using Google Forms to ascertain their feelings about their classroom experiences, notifying them that in order to avoid misunderstanding due to mistaken assumptions,

> 'this time around I'm using technology to hopefully not take much of your time, but I want to regularly find out how you're thinking and feeling about things. So I'd really appreciate it if you would take a couple of minutes to fill out this form. It won't take very long. Simple questions. Uh, but you can add a, there's a text box at the bottom you can add a sentence or two if you want to, and thank you for helping me make this a better class.' (Interview 1, August 2013)

6.2.4 "Social Management Systems" over Academic Learning Management Systems

For Ray, the 2010s marked an important shift in improvements in online content and capabilities for ELT educator development. In a spring 2013 post on an online roundtable discussion he wrote that he was "thrilled" about the movement toward open access and open research, saying that it was something he had been waiting for all his life. "The future is become today," he wrote (Ray, spring 2013, online roundtable post). Open access was one key in Ray's preference for a virtual learning environment for CU's TESOL program. He repeated in numerous places (our interviews, his emailed reflections, on social media, during his webinar and his online presentation) his belief that LMSs such as Blackboard or WebEx, designed specifically for educational purposes, were artificial and less useful to his trainees than an open "social management system" such as Google+. In our second long interview I asked him whether using a public site such as Google+ had any disadvantages. He replied,

> Well, uh, I suppose if you don't, if you don't know what you're doing and you, and you… um, uh.... [*considering answer*], honestly, I don't really think there are that many disadvantages. I'm a huge fan of using established social networks 'cos those, those are real. Real. I mean those are, those are social networks that students are likely to use, you know, later and they're likely to use the same skills and the same literacies later in their lives. Or, or after class. Which is to me, I think, the real advantage. And I guess that's the point. We can call them all social management systems. That's probably pretty useful. And we can distinguish between social management systems that have greater utility than just academic learning online. And then you can say, 'Can we deal with the, with the, can the shortcomings of those academic ones be dealt with somehow using, using the real ones?' And through Google Forms and uh Excel Spreadsheets, and things to track grades--uh, which a lot of teachers are already using anyway-- you know, then why, why do you need the other systems? (Interview 2, September 2013)

Twenty-first century digital technologies encompassed for Ray the affordance of social learning opportunities. The importance to him of using what he termed an authentic online "learning resource" (as opposed to an artificial LMS) (Ray's Blog Spring 2013) was an extension of his stated distrust in textbooks. He referred to Dogme, the learner needs-driven, materials-light ELT teaching approach popularized by Scott Thornbury in 2000 (Thornbury, 2005): "it's what everybody should be doing anyways" (Interview 2, September 2013). In a later interview, he mentioned that "philosophically" he hated textbooks and LMS for being "restrictive" (Interview 4, December 2013). He said that he doubted that most of the "ESL-only app kind of things that go around"-- such as flashcards-- were useful for teachers to use in class (Interview 2, September 2013).

Ray also felt that the state of the Internet in 2013 was a facilitating factor for a Dogme-style approach to language teaching, saying, "the beauty of the Internet is, is that it's uh it's real time interaction all the time, if you do it right" (Interview 2, September 2013). He said that LMSs threw "constraints on that interaction" by having students type in a little box or by making them "just sort of not do anything for an hour" as they watched teachers lecture (Interview 2). An academic LMS was unnatural to Ray:

> It's all just artificial communication. Uh, it doesn't occur anywhere else, you know, on the Internet, it doesn't occur anywhere else in the, except in academic assessment situations, so why would we for language development, not for, you know product training and so on, but for language teachers why would we want to throw something like Blackboard, or you know a learning management system out there to our students when we could just be, you know, Skyping and Google Hangouting and uh, using the Internet for the purposes that it's used in, in English. It seems, it just seems like, you know, forcing students to use a crappy textbook when they could just be having a good conversation (Interview 2, September 2013).

Ray had implemented a version of the Dogme approach to teaching in the Fall 2013 class that he taught for first-year university students, and he told me he found it freeing to go into the classroom with a limited lesson plan, working from input from the students. However, for accreditation purposes with the partnering American university, the content for the General Program required pre-approval, effectively limiting the implementation of a Dogme approach in the TESOL program. Moreover, Ray claimed that it was still useful for trainees to acquire the ritual of lesson planning, so that "that process gets into their head, and then it becomes an internalized process" (Interview 2, September 2013).

6.2.5 "It's the World We Live in Now"

Ray accepted that the use of real-world social media systems for pedagogical purposes could be chaotic, but he expressed a belief that educators in the 21st-century needed 21st-century literacies, including the ability to deal with privacy issues of the online world. In our conversations, the issue of privacy concerns came up several times. In 2013, revelations from US National Security Agency whistle-blower Edward Snowden had brought Internet security and privacy to the forefront of popular discussion in South Korea. In that same year, social media giant Facebook had introduced a new type of graph search to its service, making users' data more visible. Meanwhile, Internet juggernaut Google was embroiled in class-action lawsuits regarding privacy and security concerns prompted by changes to its system in 2012 (Seshagiri, 2013). In November 2013, in the middle of CU-TESOL's semester, Google made further changes to the integration of its systems, when it changed "Circles" to "Communities," meaning potential mix-ups with a new system could cause some concern for trainees.

When I mentioned that these kinds of privacy issues and changes could prove disconcerting, and wondered about the effect on trainees, Ray conceded that privacy was an issue worth considering. He later added that the CU-TESOL Program had no staff member that handled training for security and updates, and that "it's a really valid point, um, it's a valid point" that this could be a concern (Interview 4, December 2013). With no CU-TESOL training system for trainees on online posting,

Ray admitted that there had been some problems with errors such as trainees publicly posting private links or posting links with no context (Interview 4). Nevertheless, it was Ray's belief that learning how to navigate the world of social media was something with which educators needed to be able to cope, and that when it came to technological missteps, TEs needed to "learn to go with that kind of stuff, because it's just, it's the world we live in now" (Interview 4, December 2013).

In his spring 2013 paper on the video reflection project, Ray discussed the learning of "technological literacies" as a benefit of the task for trainees, noting that by the time they had finished the project, trainees possessed a portfolio of Web 2.0 skills. He reiterated this thought in our discussions: "I-I really want them to-to practice real use of stuff" (Interview 4, December 2013). He stated that acquiring technology skills was necessary for trainees (Interview 2, September 2013). He said that knowing new technologies was part of what L2 students needed to learn, in order to keep up with the Internet-enabled benefits of authentic modes of communication.

Ray expressed a general feeling that ELT professionals needed the ability to adapt to new technologies to survive in their careers. He referred sporadically to one motivation for his active participation in education-related blogging as the need for an online record of work as being a kind of online resume. By the end of the semester, he, along with Gina and another colleague, was exploring a free MOOC on how to make apps. Ray said he thought that with his age and years left in his career, he would probably miss an epoch of key emerging technologies for more project-based, hands-on creation in the hands of learners, and stated that what would "reshape kids' learning in the next ten years is the maker stuff," where all classrooms would have 3D printers (Interview 4, December 2013).

6.2.6 "The Language Is in the Interaction, My Friend"

Directly before I had revealed to Ray my investigation purpose of 21st-century technology uses and related cognitions, he and I talked about a thirty-minute webinar he had done a few months earlier on the topic of blended learning through

Google+ (Interview 2, September 2013). One Europe-based participant language teacher, Matt (a pseudonym), had asked several questions to which Ray had expressed a degree of frustration. Ray explained to me that it had been a challenge to manage the video and comments at the same time in this webinar, so we took advantage of our interview for him to clarify his thoughts. I delineate here both Ray's responses to Matt and his later clarifications and elaborations to me.

Matt had questioned where a language-learning component fit in to a Google+ project. He said he wondered if the project was not just a case of "more tech gadgetry" asking, "Where is the language learning and development?" (Ray's webinar, spring 2013). In his response, Ray invoked the dialogic aspect of language learning, saying that language learning "is in the interaction, my friend. Trust me on that" (Ray's webinar, spring 2013). He elaborated on this in our interview, referring to Vygotsky and sociolinguistic theories of language learning. Ray said that Google+ communication among language learners was "like an on-going, never-ending, meaningful practice and production stage of a lesson" (Interview 2, September 2013). "So fluency practice?" I asked him, and he replied:

> Yeah. Of course. And interaction practice. And uh, and we only develop, uh, language skills through their use. Um, you know, students could, can, if, if you're going to use, if you're going to use these communities in Google+ you, you have, you have uh, whatever, safari tasks or some kind of external reading [Ksan: Um-hmm] and so-on beforehand. Input sessions beforehand, that, that you then get to turn into a discussion or an on-going conversation online. Uh, that can be video, it can be live with Hangouts, it can be, it can be all-text, in which case students are still reading and responding. So in a sense, it's fluency practice, but it's also… they're also producing. Students get to see what they've written and most of the students-- not most-- but a great many of the students I've met are more careful about what's visible, what they've produced. So they want to be careful, so there's even arguably a chance that's a better kind of accuracy. Uh, a more accurate kind of fluency practice. (Interview 2, September 2013)

One of Matt's questions had also been about the rationale for getting learners to use a new social media network if they were already familiar with other ones such as Facebook. Ray initially told Matt that he used the relatively unfamiliar Google+ instead of Facebook because he wanted trainees to use a new "alphabet." He later explained to me that since Google+ was new to learners, "there's the opportunity to uh, to create English-only habits and environments with them, while they're there" (Interview 2, September 2013).

In the content and language integrated learning (CLIL) approach used by Ray and his colleagues in the General Program, the subject matter would generally supersede an overt focus on language learning. Although Ray told me he was aware that the program emphasized L2 improvement in its marketing materials and that trainee expectations for courses often centred on language learning opportunities, he had stated in an earlier interview, "I have to confess, I'm not as, I'm not as interested in the language development side as I am in the teacher development side" (Interview 2, September 2013). He acknowledged that a common "flaw with the approach is that almost invariably, mmm, not enough emphasis is placed on language" (Interview 2, September 2013). Nevertheless, Ray felt that in a CLIL approach, where content is king, the interactions between learners allowed for real language learning opportunities, noting that "tech is a tool for autonomous language [development]" (Interview 3, Nov, 2013).

6.2.7 Technologies Should Also Be for the Benefit of the Teacher Educators

I pursued the matter of Matt's questions a little further with Ray, asking why the international students who were already on Facebook had to move to Google+. He quipped, "We told them to" (Interview 2, September 2013). He continued,

> but again, [*sighs*], I feel much more comfortable telling them to go to that one and learn that, that literacy, and this is about technology now, uh, then going to Blackboard or something, because again, this, this is a social networking platform that they are going to meet in their lives if they remain in the

> graduate and post-graduate educated world. Because it's a booming social network, it's growing, it's growing. (Interview 2, September 2013)

In the guise of Devil's advocate, I pointed out that Facebook was also a growing network. He replied that that was true, but that Google+ was "a new literacy" (Interview 2). He then paused for a moment, and added:

> The other end of it is to me--and the argument with the pens and papers thing-- is acquiring technology skills and acquiring technology, technological literacy is a, sort of like multiple intelligence deal now, where we as teachers know that students are evolving in that world, where there's a new fad or a new technology. Not, not that's just any old technology, but something that needs to be understood. It's a part of successful living.

Ray then conceded that the use of Google+ was not just for the trainees, but also for the TEs. He pointed out that when he needed to share materials with others in the YL program, not having the faculty and trainees using the same Google+ system was a frustration as for the past two years he had had another channel to use when students wanted to ask questions between classes. Working without this in the YL program, he said he "was lost. I, I couldn't do it" (Interview 2, September 2013).

In reference to the Google+ platform, with which he and his faculty were already familiar, Ray admitted that it was "organisationally" great for the TEs, but claimed that "any tool used by two parties has affordances and constraints on both parties" and that it was therefore not a question of being "altruistic" (Interview 2) to claim that "teachers are sacrificing themselves so that students can take full advantage of something. No, there's benefits and disadvantages to [Google+], like any cultural tool, uh, for, for both sides" (Interview 2, September 2013). Given that the same Google+ system was being used for both international trainees and South Korean trainees, an acknowledgement of the usefulness of 21st-century technologies for the TEs themselves lent a more pragmatic aspect to Ray's choice of a learning

management platform than his argument about familiar versus unfamiliar "alphabets."

6.3 The Cognitions of Jeff in Relation to the Pedagogical Efficacies and Purposes of 21st-century Technologies in His Practice as a Teacher Educator

6.3.1 Jeff's High Technological Content Knowledge and TPACK

Unlike Ray, Jeff had had no prior jobs in the technology field. Nevertheless, he possessed a high level of confidence in his abilities to use new technologies, telling me that he typically kept "up to date" with devices and computers (Interview 4, December 2013). He had taken a technology and education class ten years prior in his undergraduate degree; however, he said he had found the information presented overly mundane for his capabilities: "at that time I-I wasn't like, uh, you know, super into technology, but I-I was always interested in computers, and in-in that class I just remember thinking, 'Oh this is so boring'" (Interview 4, December 2013). Jeff said he considered himself a kind of "digital native" (Interview 3) saying he "grew up at a time when technology was just kind of starting" and that he "kind of grew up with this stuff, so a lot of the things are-are just easy to figure out" (Interview 3, November 2013). He said he was a "pretty early" (Interview 4, December 2013) adopter of technologies, and explained how he had been waiting from his early adolescence for technologies to catch up to what he wanted to be able to achieve.

Jeff displayed a high self-efficacy level of TPACK. He had had a pioneering role in bringing Google+ to the General Program. After experimenting with Google+ for the literature circles, he volunteered to lead meetings for the staff to show others how to use the platform. Jeff used the Ed Tech Community in Google+ and on Twitter as well as mobile news aggregators for news about educational technologies. He was able to troubleshoot and I observed him suggesting a browser change for a trainee having problems with Google+ (Jeff, observation 1, August 2013).

6.3.2 Content, Pedagogy, and Technology: "I Think They're Separate"

Several times Jeff and I talked about his thoughts on the needs of trainees. He asserted that content was perhaps the most important aspect of the General course (Interview 2, September 2013) He also said he felt that being able to use technologies was part of a teacher's basic toolkit. However, he mentioned he was of two minds as to whether learning to incorporate technologies should fit into the many aspects of learning required by trainees. When I asked him about whether an assistant should be helping the trainees with technology aspects of the course, he responded:

> One side of me says that, you know, before technology comes into the picture, they've got to understand language teaching and learning. Uh, because if they don't have that, technology's not going to be of any assistance, it's not going to help, it's going to hurt them. Uh, but on the other hand, I think that, you know, fluency with those tools is part of what a teacher needs, just like a teacher can, you know, knows how to use the whiteboard, or knows how to interact with students, or put activities together in a-in an appropriate sequence, they need to be able to, uh, set up a blog, or, uh, use the-use a PowerPoint effectively. (Interview 3, November 2013)

Jeff had mixed feelings about how important it would be for the General Program to focus explicitly on helping trainees to acquire this kind of technological fluency. I asked him if he thought that content, pedagogy, and technology were always intertwined or were separable aspects of learning and teaching. He told me he thought they were separate. He said that when he had arrived at the General Program, the coordinator at the time had been a major supporter of the "classroom interaction" pedagogy that had been favoured and instilled by the American university that accredited the program. Jeff noted that the coordinator's "big thing" was that "if you get the students to interact and you use the whiteboard well, then you don't need anything else" (Interview 3, November 2013). Jeff felt that this was the model that should be provided for trainees.

For Jeff, it was important that educators to be able to use their pedagogical and content knowledge to figure out what aspects of technology would work best in their classrooms. He explained that when he found other educators' pedagogical technology ideas through his various online channels, "whenever it comes in, I try to, uh, I try it out and-and then sometimes the stuff works, other times it seems it's not, it's not ready" (Interview 3, November 2013). In another interview, he said that technology was "always a means to an end, it's never something I *have* to learn" (Interview 4, December 2013), and that rather than researching technologies just for the sake of it, "it's always, like, I get what I need" (Interview 4, December 2013). He had told me in our first interview that as soon as a new educational technology tool became available, he "tried to integrate it," but that this had been a recent development in his work. He said that emerging technologies on the market often did not work well, and that it was worth waiting for them to develop further (Interview 1, August 2013). He made the point that teachers needed to know what they were looking for before they could integrate new developments.

Jeff said he thought that student-centred learning was important for his trainees to both engage in and learn how to do. He thought collaborative learning was important in an EFL situation, saying: "if the teacher's the only source of input and interaction, then it's just not enough to make anything work" (Interview 4).

6.3.3 Figuring Things Out: "There Is a Way to Do It"

A tenet of 21st-century skills is that learners have the ability to 'figure things out' (Selingo, 2011). Jeff seemed to place a high premium on knowing how to solve problems when using 21st-century digital technologies. He felt that part of a teacher's core skills in working with technologies involved the "ability to troubleshoot, to have plan B, or to know how to get from point A to point B, uh, in some other way, uh, you know than just the-the routine clicks" (Interview 3, November 2013). When I asked him what a teacher required in applying for jobs, he said he thought that troubleshooting was important (Interview 3, November 2013). In his own teaching, he was confident in his ability to take on the challenge of learning to use new technologies. When we discussed the blended learning course

that was being developed for the General Program, Jeff said that he was not worried about having to learn something new: “I always, uh, you know pay attention to what's going on, um, with technology and education. And I figure whatever, whatever the platform is, I'm sure I can figure it out.” (Interview 2, October 2013).

Jeff acknowledged that technological fluency levels, just like language proficiencies, differed in any given class in the General Program. However, in terms of the technologies that trainees would need to handle during the course, Jeff said he thought that they needed a “basic understanding” of how something like Google+ would work, but that “it’s not hard, even if it’s completely new” (Interview 3, November 2013), suggesting that trainees could figure things out if they were given the opportunity and were forced to work through it. Nevertheless, he acknowledged that for the program’s trainees and especially “for, uh, people who weren’t, you know, into computers, figuring out stuff is hard. And when-when something doesn’t work, everything is ruined” (Interview 3, November 2013).

I asked Jeff if it would help for the program to have an assistant to help familiarise trainees with digital programs that they would be required to use, and he brought up the concept of digital nativism (Prensky, 2001) and mixed technological levels, with some trainees being “digital natives” (Interview 3) and others adoption laggards (Rogers, 2003):

> So, it’s hard because we have, you know, students, uh, or someone like Ray who’s not digital native, but has really embraced the, you know, the-the things that come out, and, you know, has no-no problems. Uh, and we have students his age who, you know, they-they can’t make the slideshow full screen” (Interview 3, November 2013).

Jeff said he believed that in contrast to some trainees in the General Program, his CU undergraduate first-year students of academic English were “digital natives” and

possessed a troubleshooting quality that allowed them to press through technological stumbling blocks:

> It is the intuition, like [a student] believes something can be done and, if you can't, if it's not obvious, you've got to find out how to do it. There's always something that, you know, some things you reach a point where it's beyond your capability, but [with] most things there is always a way. (Interview 3, November 2013)

In a subsequent interview, Jeff said that only about half of his trainees were digital natives (Interview 4, December 2013). Despite these mixed abilities in General classes, Jeff thought that trainees were basically capable of using the technologies demanded of them for the program, with some leeway given for issues at the beginning of the term in handing in assignments. Although he admitted that it would be helpful if he created clearer instructions using screenshots, he did not feel precious class time should be devoted to familiarising trainees with the technologies, noting that trainees "talk to each other and they see others' [work], they figure it out" (Interview 3, November 2013).

6.3.4 "I'm Really Optimistic with What's Possible"

Jeff projected a positive attitude about the capabilities of technologies and the developments that had taken place with online communication within his lifetime. He spoke about the excitement of getting a *pingback* (automatic notification) on his blog from an unknown educator somewhere around the world, demonstrating how technologies had developed since he was younger:

> I guess for me I kind, I kind of grew up like I, with the Internet. [*Ksan chuckles*]. So I can remember, uh, I was in high school and it's like 14.4 baud per second. Right? And me and my friend were trying to, he lives across town, we're trying to get our computers to connect with some little program. We get it to connect and we can send each other messages. Like, it's amazing. Amazing thing. And back then it was, like, what if we could, what if you could connect

> all the people in the world? Send out a message and have thousands of people read it? So it was kind of this thing, maybe if something happened. And now I know, it, it happened. So it's fun to get in touch with someone completely through the Internet. (Interview 1, August 2013)

By 2013, Web 2.0 technologies had developed to such an extent that many functions not readily available to teachers in the early 2000s—social media and interactive, multimedia blogging, for example-- were now within the grasp of ordinary educators in South Korea. This development had opened pedagogical opportunities for which Jeff had been waiting. When I asked him about his methods of learning about TPACK, he talked about his undergraduate educational technology class:

> At the time I thought, you know, technology isn't ready. It's not ready to be taken and applied for education. And, you know, of course it was, and schools had computers and all that stuff, but I knew that this has got to get better because in addition to this we should be able to do this and this and this. So, I had this kind of wish-list of things tech could do for me. Uh, and then it just seems like in the last five years everything has, has been checked off that list. And so when-when I see it, when I see an article online, I've already had, I've already thought about something I want to do. And in my head I have this plan that if I could do this I would do this. And then I see that, you know, something's possible now. So then it's just the matter of figuring out how to use the actual thing, looking at whatever it is. (Interview 3, November 2013).

Later, Jeff followed up on his thoughts about how far educational technologies had come, recalling the hardware and platforms of the educational technology class:

> There were like these dinosaur computers and pixels the size of my phone. [*chuckles*] "Oh, man, this is, it's just boring." It's not, it's, you know the idea is great but the technology just can't meet the demand of the classroom and the

teacher. [K: mm-hmm]. Uh, but you know since then a lot has changed. (Interview 4, December 2013)

Jeff also said he liked to use his educational technology news aggregators to try to keep up with innovations, paying close attention to how other educators were already implementing new technologies in their classrooms. "New stuff comes up all the time. If somebody has a blog post about, uh, something, you know I can do--they give an example of one thing, and I can do, you know, five different things that would fit my class" (Interview 3, November 2013).

6.3.5 Trainees Will Need to Know How to Use Some Technologies

Jeff thought that trainees would need to be able to show their ability to use technologies when they went looking for work upon graduation. When we discussed the LCD screen-board at CU, he mentioned that "a lot of the students will encounter them, so it will be good to have them interact a little bit"(Interview 3, No 2013). He also said he thought that parents and students had an expectation that teachers would have technological "fluency" and "a variety of tools" (Interview 3, November 2013), and that employers at schools may consider educational technology achievements on teacher candidates' resumes. He said he felt that within these skills, learning to troubleshoot was the most important.

6.4 The Cognitions of Luke in Relation to the Pedagogical Efficacies and Purposes of 21st-century Technologies in His Practice as a Teacher Educator

6.4.1 Luke's Above-Average Technological Content Knowledge and TPACK

Unlike Ray and Jeff, Luke lacked a strong background in educational technologies. He joked that the last simple educational technology class he had taken had been thirteen years prior (Interview 4, December 2013). He did not feel he kept up with technologies compared to others on the faculty or as much as he thought he probably should. He also said that he did not particularly like to play around with technologies in his free time and spent little time looking up information about new

educational technologies. In answer to the TPACK survey item about providing leadership "in helping others to coordinate the use of content, technologies and teaching approaches at my school and, or district" (Schmidt et al., 2009), he replied, "No, I'm not the one for that" (Interview 4, December 2013).

Nevertheless, while Luke said he felt he did not always know the true "worth" (Interview 4, December 2013) or the workings of certain applications, he thought he had a good grasp of what kinds of technology existed. He was also a fairly confident user of technologies, mentioning that he generally felt capable of solving his own technical problems "if it's a user thing" rather than a hardware-related problem (Interview 4, December 2013). He gave the example of encountering issues in uploading some of his trainees' microteaching videos and simply searching online until he found a solution. He also felt he was fairly fluent at using technologies in the classroom and was able to assist any trainees who were having technical problems during their microteachings. He considered himself capable of using the knowledge gained from his experience to pre-empt problems. For example, he warned trainees not to cause a time lull by turning off the projector between presentations, teaching them instead to use the blank screen button.

6.4.2 "A Little Bit of a Late Adopter, But It's Fine"

Luke considered himself "a little bit of a late adopter" of new educational technologies, but said he thought this was "fine" (Interview 4), mentioning that it suited him to let others work things out first. He stated, "I feel like there is so much that just the people around me, [new technologies] will get filtered through them. Then whatever's good I will get kind of second-hand" (Interview 4, December 2013). He maintained that he gained awareness of new technologies through co-workers, friends who were former colleagues, and "people just in the same field who might say, 'hello, have you checked this out?'" (Interview 4, December 2013).

Luke found it preferable to wait for colleagues and friends to first try out new technologies and share their insights, opining that the sheer amount of information posted in forums on Facebook or Google+ was overwhelming:

> It's like people just post too much. So I don't, so I ignore everything. If there was like somewhere I could go and see here's one new cool thing per week, then I might do that. But if it's a dozen, then I just kind of just wait until the crisis is over. (Interview 4, December 2013)

6.4.3 "I Don't Know What I Don't Know"

Luke felt he had limited knowledge on how to choose technologies that enhanced the teaching approaches for a lesson, stating: "I don't do that as much as I probably could, or I don't know where to start so much, I guess" (Interview 4 Dec, 2013). However, while he considered himself a bit of an adoption laggard, he said, "I have never gone to the point where I feel like I'm being passed by with technology. I don't know if that makes any sense. Like I'm-I'm a late adopter, but I'm not so late. Maybe in ten years I'll be like that" (Interview 4, December 2013).

6.4.4 "Just Do Enough for What Is Needed in That Moment"

For Luke, educational technology was not a particular professional interest. In response to the TPACK survey, he said he spent little time reflecting critically about how to use technology in the classroom (Interview 4, December 2013) and at conferences he tended not to "seek out the tech stuff" (Interview 4, December 2013). While his colleagues had influenced which technologies he used, they had not affected his intrinsic interest in technology-enhanced learning (Interview 4, December 2013). If he knew that a colleague teaching the same lesson was incorporating a technology, he would try it too. In addition to finding it easier to "just follow along," he said he would want to "try it out" and would be "kind of curious" but would "just do enough to what is needed in that moment" (Interview 4, December 2013).

Luke mentioned that because his colleagues were interested in technologies and because he worked in a place where lecturers needed to work together, he did not feel he needed to go out of his way to learn specifically about technologies:

> I get enough of it here, if I work, you know, in a different situation where I didn't really have any co-workers, like I have some friends who work in universities, they barely see their co-workers, they just go to their office, they go to their class, they go home, that's how you are, so, I might be more motivated. Also if I had more time, I'd be more motivated, so…. (Interview 4, December 2013)

When Luke learned about educational technologies, he wanted to see immediate uses applicable to his trainees' or his own situations. He mentioned attending a recent workshop on the topic of cooperative learning and technology that turned out to be focused on using the virtual reality program Second Life for ELT, but found the usage "so far removed from like a real situation" (with six students all around the world) that "it was kind of a waste of time" (Interview 4, December 2013).

Luke also said he felt his TPACK was improving, stating that he felt he could choose "fairly well" technologies that would enhance the content of a lesson and that his instructional technology abilities were "not so bad, getting better I guess" (Interview 4, December 2013).

6.4.5 A Lack of Overt Modelling

Luke and I discussed the TEs' use of demonstration to trainees on how to use technologies in their own teaching practice. Luke said he thought that the General Program's offering of such modelling to trainees was insufficient. He explained that this might be due to time, resources, and skills:

> I think we don't do that because of, uh, time. I mean, if we had a three-hour class, then I could. Or maybe resources. There is only one computer lab. And for me, to my limited knowledge of technology, for me to explain it to somebody who has limited English proficiency-- and they're just watching me do it, they're not doing it themselves-- I thought it would not be very effective. And then I think they'd go home and try and get frustrated. (Interview 4, December 2013)

According to Luke, because of this lack of instruction and monitoring, trainees would at times miss out on important technological requirements for full participation in the course. He told me about one such trainee in an earlier semester who had approached him in the seventh or eighth week of the program:

> …she came to me and she was like, 'I don't have a Google,' or something like that. And I was like, 'You should have been using this community for eight weeks, but you don't have "a Google," the first thing you need?' So she clearly wasn't involved in the community, didn't understand… (Interview 4, December 2013)

Luke felt that sometimes South Korean trainees would say that they had understood something that was really still unclear to them, and he worried that this could impede implementation of a program.

6.4.6 "We're So Connected to Them"

Luke maintained that the TEs were "so connected" to the program's trainees that he found their expectations "almost frustrating" at times (Interview 2, October 2013). He said that while it was fine for him to respond to trainees' easy requests and questions when he was already on the computer, there was a perception that he would be endlessly available online. This constant connection prompted Luke to create a separate Facebook page for trainee-only communication.

6.4.7 "Two Heads Are Better Than One": Collaboration and Student-Centredness

Luke valued collaborative learning. He asserted, "no matter what you're learning, I think two heads are better than one" maintaining that it was "always good to get a second perspective. And even if it just makes you reject somebody else's idea and kind of re-confirm your own beliefs, I think that's, that's important-- to kind of question, like, the way you approach something" (Interview 4, December 2013). Collaboration has been hailed as an opportunity for learning for EL learners (Warschauer, 2013) and TESOL-TEs (Stillwell, 2009), but a common complaint

among learners is that collaboration can feel false, with people forced to work together and share thoughts on discussion boards or in teams. Luke raised the issue of awkwardly forced collaboration, mentioning his experience as a student in one of his own doctoral courses, where a professor would have various students bring in a lesson from their practice and work together to make a new lesson. Luke said the system had never quite worked, since all members of the team worked in different contexts and with diverse types of lessons.

On the contrary, a spontaneous moment in Luke's doctoral studies had convinced him that a true exchange of information—one in which members of a learning community could help to fill noticeable gaps in knowledge—was the most valuable kind of learning experience. He told an anecdote about his "best teaching moment" as a student in the PhD program (Interview 4, December 2013). Luke said that in his phonology lecture, the students "never talked, just listened the whole time" (Interview 4, December 2013). At the end of a lecture in the thirteenth week of the semester, with the professor already out of the room, Luke turned to a classmate and admitted he had "no idea" what was going on. Working together, Luke and his classmates eventually "figured it out" on their own (Interview 4, December 2013).

Luke had kept this doctoral experience in mind in attempting to avoid the problem of faked collaboration when he and Jeff were planning the Academic Reading Circles activity. He explained that they designed the activity so that each person had a special role, and that the TEs used technologies to allow trainees to find a way to deal with difficult content while interacting with one another. Luke agreed that his trainees should take this kind of student-centred approach to ELT. He also said he thought that the program taught trainees how to take such an approach (Interview 4, December 2013). Nevertheless, he felt that there was an unwritten expectation that participants respond to a certain number of posts, and that the sheer amount of required content in the General Program was a hindrance to a more student-centred approach, saying,

> I think because of our content heavy courses, it's impossible to make it completely student-centred. I think we'd have to cut some content to increase student interaction with the content, but sometimes we get bogged down with constant delivery, as opposed to them, like, processing and reprocessing the content, making it meaningful. (Interview 4, December 2013)

At the same time, Luke had also mentioned in an earlier interview that without a kind of monitoring and assessment built in, even the act of uploading a blog post, a requirement for trainee online conversations, was not always fulfilled on time by trainees. Part of the reason for this, he said, was because even though he was easily able to see whether or not students had uploaded posts, feedback was not given until closer to the end of the session. He told me he would inform trainees in class if he had been woken up from text messages on a Saturday for assignments due on Thursday, telling the class, "I know some of you are uploading your blog but it's too late" (Interview 3, November 2013). He said that he would observe expressions of guilt among the trainees, but noted to me that, "because it's not equated to a grade, unfortunately it doesn't seem as important. And I think next semester I need to do a better job of making them see that as important" (Interview 3, November 2013). I pointed out to Luke that sometimes software systems could let users know that their contribution was late. Luke said he did not want to block late submissions, but rather that he wished "there was a way it would pop up and say, 'Thanks for posting. Thanks for posting. Your contribution is really valuable but unfortunately you're a little bit late this time, so you're going to be deducted some points. You know, 'try to be on time next time'" (Interview 3). He claimed that he wanted "something a little friendlier, a little more encouraging" (Interview 3, November 2013).

Having an information gap that requires a 'negotiation of meaning' is a key component of student-centred collaborative language learning and cross-cultural communication, and in our second interview, Luke had discussed a project that he

could imagine but that he did not know how to go about starting for his Cross-Cultural Communication class:

> I would like to set up some kind of a pen pal thing, or something where they're-- and I mean with Skype-- or they can easily contact someone in another country and ask them questions. And relate the core, that week's content to a real person, you know? So, I'd like to do something like that. But I don't know how to go about doing that. I have to look into that. (Interview 2, October 2013)

6.5 The Cognitions of Gina in Relation to the Pedagogical Efficacies and Purposes of 21st-century Technologies in Her Practice as a Teacher Educator

6.5.1 Gina's Technological Content Knowledge and TPACK

Gina presented a mix of cognitions on instructional efficacies of 21st-century technologies. For her K-12 years, she had attended a special experiential school where most modern electronics were not permitted in the classroom. She acquired her first computer only after having completed her entire undergraduate degree. She described herself as "horrible" with technologies (Interview 2, September 2013), but also said she felt "pretty confident" that she could figure things out when she needed to solve technical problems (Interview 4, December 2013). Gina said she was able to learn technology easily, as "even if I don't have a lot of it, I feel confident that I can" (Interview 4, December 2013).

6.5.2 "I Actually Like Having the Distance."

In the connected online world of 2013 South Korea it was not uncommon for university English instructors to become online contacts with students on social networks or even to distribute to students their mobile phone number or Kakao Talk identification number. Gina mentioned that she knew that some of her colleagues did reveal this information to trainees, but that she chose to maintain an accessibility distance between her and trainees. Before the autumn semester had begun, Gina wrote that while her "brain is always working in the background during

holidays," that it had been essential to have a "good month un-plugged" (Gina-Email-July 31-2013). In her first interview, Gina talked about her belief in maintaining some control over the boundaries separating work and learners from the rest of her life. She joked about her non-smart mobile phone, saying it was like living "in the last century. Yeah, [*laughs*]. Dinosaur phone only." I asked her if her trainees ever asked her about her lack of a smartphone and she responded,

> Of course! [*laughs*]. And I'm, I, I'm secretly thrilled that they have no way of like finding and contacting me [K: (*laughing*) Oh!] at anytime [*laughs*]. No, I actually like having the distance, I, I mean, I guess these days it's changing so quickly that people can always find you. But I, I don't want people to feel like they can expect a response anytime, all the time. (Interview 1, August 2013)

Gina had taken a similar attitude to Luke's with social networks such as Facebook, for which she had created a special closed account for teaching contacts, asserting "I won't 'friend' anyone until three months after I've taught you," and stating that she didn't "like to advertise. I don't want a hundred and forty people every semester [*laughs*]" (Interview 1, August 2013). She noted that she did have some former learners in her social networking systems as "that's how I do keep in contact with some of the ones in other countries," but that she would go through her networks "like, every year, and just kind of clean it up, like I don't remember them, or when their picture's not there, they're gone. You know, I just, they can email me [*laughs*]" (Interview 1, August 2013).

What is remarkable here is what Gina considered online 'distance': although CU's TESOL program had dedicated email addresses for TEs, emails from trainees went to her private email, which she would check daily. In Gina's understanding, 'distance' meant a life away from the push notifications and beeps that came with a smartphone, although she acknowledged that with the change of the times in the early 2010s, people could always find you online if they wanted to.

However, while Gina expressed a preference not to be considered ceaselessly available to trainees, she said she found interaction with trainees an extremely rewarding part of her career, and would not wish to miss out on opportunities for a personal connection with learners. In a subsequent discussion of online learning, Gina expressed her concerns about any type of teaching in which she would not be able to interact face-to-face with students or trainees:

> I don't know if I'd want to do only online though. I really, really would miss the in-person interaction, and that's part of what I honestly really love about teaching. Um, and I'm far better in person than I am-- I hate telephones…. so I think if it were face-to-face video, I could, I would learn how and adopt my style to figure that out. But I don't know that I'd want to entirely get rid of the personal interaction. (Interview 3, October 2013)

6.5.3 Some Aspects of Learning "Need to Be Face-to-face"

In a discussion of the BLP undergoing development at her school, Gina mentioned that she felt that to foster interactivity among trainees, "there are some particular lessons, or uh, activities that we want to do that really need to be face-to-face" (Interview 2, September 2013). She used the example of Barnga, a popular card game in cross-cultural communication courses. In this game, unbeknownst to the players, individuals are each given a separate set of rules. After they try to play the game, experiencing confusion and annoyance as they watch others attempt to play an entirely different game, the instructor explains what has happened, and a discussion on intercultural misunderstandings ensues. She told me that that it had been fun to "trick" her international trainees the week prior when she had tried the game in class, saying it was a great culture shock experience for them and was "something you can't do online and have it be meaningful" (Interview 2, September 2013).

6.5.4 "Coding Is the International Language"

In the semester of 2013, Gina was learning how to code and was creating a small micro-processor in the process. She explained that it was like a small circuit board

that she could wire to electronic items in order to light up lights and construct little robots. She said, “basically the reason I'm doing it is for a fun way to learn coding”(Interview 2, September 2013). When I asked her why she was learning to code, she said,

> in [the Cross-cultural Communication class] we teach that English is the international language. It's the tool for communicating between everyone. But I think actually, in the direction we're going, coding is the international language [*laughs*]. (Interview 2, September 2013)

Gina told me that she thought that teachers in the near future would benefit from the ability to create their own apps, and that this was a reason to learn to code. She maintained that coding provided an opportunity for teachers to do a “kind of hands-on, uh, creative learning um, in some way with kids, where they're building things but they're using language and they're interacting and it's kind of task-based and fun” (Interview 2, September 2013). However, she also said that she just found it enjoyable to try something new like coding as “it changes the way you see the world when you learn new things” (Interview 2, September 2013), and it had applications “outside of the EFL field or it could be content-based” (Interview 2, September 2013), in particular with task-based math or science learning.

By the Fall 2013 semester, Pelling’s (2002, in Pelling, 2011) concept of ‘gamification’ had gained purchase in discussions of instructional uses of technology (Gee & Hayes, 2011; Stanley, 2013), and it was a subject about which Gina was, “just fascinated, it’s one of those new things that I want to learn about” (Interview 3, October 2013). She said that while she was not herself a gamer, apart from some puzzles, text-based games and some simulation games she had tried, she saw potential in games for learning and, in particular, for communicative language learning:

> I’ve seen games where, uh, they require a lot of strategy and critical thinking skills, and they require you to, uh, think differently in different circumstances,

> to solve puzzles, or to do things. Uh, so I think that there's, somewhere in there is a huge potential for getting students to really, um, develop better communicative strategies that are required in different contexts, because we don't use the same strategies in every situation. (K: Right), and it's the same way in games. Uh, for one stage you need to solve it in this way, and in another stage it's a different way. (Interview 3, October 2013)

Gina said that what she liked about game-based learning was its inherent critical thinking, problem-solving, and just-in-time information gaps. She told me,

> you're solving problems constantly. Something goes wrong, there is a disaster, you need to figure out how to fix it. Um, so I think that there is a way to adapt those kinds of things and do activities that are different. Each time they require different ways of solving them, and get them thinking more critically instead of copying the model that the teacher taught them to do every time. (Interview 3, October 2013)

I asked Gina how gamification processes might be used for EL learning and teacher development. She emphasized a task-based approach, noting that language teachers could definitely practice "critical thinking skills in general, um, and utilizing the content and concepts that you're giving them in new ways, actually apply them, not just memorize them" (Interview 3, October 2013). While we were talking she considered the specific language learning benefits of problem-solving games, including socio-pragmatic aspects and gap-noticing with a communicative language teaching approach. She said,

> I think that it would work for communicative strategies too. We don't speak to everyone the same way in every situation. So being able to - I don't know - having some kind of activity where it's a game or a, uh, you're thrown into a new context and you have to create this new language in a new way. Then you're put into a different context at a different time, almost the same but a little different, how would your language change? Yeah, I mean, there is,

> there should always be at some point some kind of production of some sort, um, not a formal presentation necessarily. But, yeah, part of the language development would be in the process, like task a task-based techno thing could be a group or pair work. (Interview 3, October 2013)

Although not popular in South Korean teaching circles in 2013, the role-playing game Second Life was being applied elsewhere in education settings (see, for example, Morse, Littleton, MacLeod, & Ewins, 2009). While Luke had been unimpressed by the lack of logistics explanations in a Second Life seminar he had attended, Gina was interested in how people were using virtual worlds like Second Life and virtual avatars related to identity. She had read research that had found that the colour of a shirt worn by someone's online avatar could have an effect on a person's real-world persona and confidence, and thought this was "fascinating from a language learning perspective too, because the same thing happens with language, or if you have an English name" (Interview 3, October 2013). She also favoured the computerized world-building game Minecraft, mentioning that the PBS Idea channel on Youtube had a "great video" on Minecraft, gaming, and education for science teaching (Interview 3).

While Gina had not incorporated a Web 2.0 gamification aspect into her instruction with teacher trainees, she noted that Mark, the coordinator of the CU YL-TESOL program had integrated a type of low-tech game system into his assignments for trainees. In the system, points were allotted to different tasks and trainees could choose how to combine the diverse tasks and points in order to reach the full requirement. Gina said she was interested in this kind of motivational strategy. Later in the semester, she used a gamification idea from a MOOC about online teaching that she was taking. Her idea was to have trainees transform direct language into high-context using competitive character paper-and-pencil scripts (Gina-Email-Oct-2013).

6.5.5 Anybody Can Learn: "It's Just a Few Really Simple Concepts"

One tenet of lifelong learning is to find enjoyment in learning (Jõgi, Karu, & Krabi 2015), and Gina seemed to find intrinsic motivation in acquiring new knowledge: in response to the ATE's (2008) TE standards, she asserted it was a "constant—though fun and rewarding—challenge to continue and improve" on her abilities as a TE (Gina, email, October 2013). She finished a discussion on the topic of her self-directed research on online avatars with a simple explanation: "I like learning. Everybody knows too much" (Interview 3, October 2013). When I expressed my surprise that Gina considered herself terrible at using computers (Interview 2), pointing out that she was learning to program code, she responded that she had simply not had much experience with computers until she had graduated from college in 2004 and had been "kind of a Luddite" (Interview 2). She described how earlier in life she had considered basic science concepts reserved for very intelligent people, beyond the grasp of most people. She said she eventually learned that "the more I look into these things I realize it's all fairly simple, and you don't have to be a techie to, it's just basic logic" (Interview 2, September 2013).

Gina said she had acquired numerous technical skills in her time at CU. She expressed this attitude of openness to lifelong learning regarding a variety of aspects related to her practice in using 21st-century technologies. Around seven years earlier, for example, she had started to become very interested in science. In her twenties, she had made a list of things she wanted to do by the time she turned thirty. On the list was to understand Einstein's Special Theory of Relativity, which she had considered "the most obscure thing" (Interview 2) she could think of. In pursuit of her goal, she realized "once I started reading [explanations about relativity] most of it was pretty simple" (Interview 2, September 2013). She likened this experience to overcoming her anxiety of using PowerPoint, telling me that she had never used it before her arrival at CU and had initially been "kind of scared of using computers in the classroom." She recounted her nervousness during her first lessons as she asked herself whether her USB would work and whether she would know how to adjust the volume (Interview 2). She told me that despite her nerves, she soon realized,

> ‘This is easy.’ And then I, uh, one of my colleagues also gave me some books on designing, design for Powerpoint, so how to make them nicer visually and memorable, and um I realized I kind of had a few ‘aha’ moments where I was, ‘Aha! The transparency box! That's the only thing that makes this go from this horrible PowerPoint to this amazing visual image!’ And it was kind of one of those moments, like ‘It's not magic. It's just a few really simple concepts. I, I can learn anything.’ I don't consider myself that smart, but like, all you gotta do is like get on the Internet and learn it, so.” (Interview 2, September 2013)

Outside of Word and PowerPoint, Gina said she had used very few technologies prior to CU, and that it had been new for her to learn how to collaborate online: “So just even, just sharing, just Google Docs and sharing, working on things together with colleagues that way [Ksan: Right]. I guess that's all Google isn't it?” (Interview 2, September 2013).

6.5.6 “The More You Learn, the More You Realize How Much You Don’t Know”

Gina expressed her awareness of the challenge of developing TPACK. In our third interview, out of the categories of PK, CK, and TK, Gina said she felt her strength was “definitely not the technological one [*laughs*]” (Interview 3, October 2013). When I probed further, however, she maintained,

> the thing about learning new things is the more you learn the more you realize how much you don’t know. And so when you start learning something you realize, ‘Oh my gosh, I still have so much more.’ Whereas before you started you, you had no idea of the depth of it. (Interview 3, October 2013)

In response to a reflection prompt, Gina had written, “I used to *think* I was aware of all the areas in which I could improve as a TE, but now I am aware of many **more** areas needing of improvement that I had never before conceived of. But…, even more importantly, I am *hyper* aware of how many *more* there must be that I *still* can’t see…” (Gina, email, August 22, 2013).

6.5.7 “It's Kind of Go-go-go with the Content”

The issue of time constraints and, in particular, time to cover content arose several times in my discussions with Gina. In our second interview, I asked Gina if she had ever told her trainees that she was learning how to code. She responded that in her program, she did not have much time “to build those kinds of relationships. I mean, I, I build a relationship and rapport with them but it's kind of go-go-go with the content” (Interview 2, September 2013). Sufficient time to go through content was a particular issue with the Korean trainees. She initially attributed this difference to the fewer number of trainees in the international classes and their faster pace of classroom speech in, claiming that more profound discussions seemed to be achieved with the international trainees than with the Korean groups. She said the international trainees,

> … ask more questions or throw them into conversations, or there's more personalization going on and uh relevance to personal lives and how we're using these things in our lives. Uh, so there's just more, there's deeper discussion that allows it to come up. (Interview 2, September 2013)

However, it was apparent that Gina also believed that proficiency-building in the classes of Korean trainees created a slower pace for learning content. She maintained that there was not enough time, in part because “there's just so much content” (Interview 2, September 2013). She said she struggled to find an equilibrium of time for error correction, saying,

> you're constantly balancing. Um, if I spend five minutes even just talking about what I'm doing, that's five minutes gone from proficiency building and content building…(Interview 2, September 2013)

Gina had mentioned the “acrobatic balancing activity to try and harmonize” a “stream-lined” CCC curriculum that would have “excellent and consistent” content and assessment while still having opportunities to take advantage of spontaneous

classroom moments and individual teacher styles (Gina, emailed reflection, August 20, 2013). As one of the benefits of Web 2.0 technologies is the ability to 'flip' classes (Baepler, Walker, & Driessen, 2014) to save in-person class time, it is noteworthy that Gina made no mention of 21st-century technologies in her discussions of time for content.

6.5.8 Face-to-face vs Online for Collaboration and Reflection among Colleagues

Gina recalled when she and her colleagues had first started using Google+ a few semesters earlier; they had tried it out amongst themselves as a communication method, but "didn't really use it that first semester" (Interview 2, September 2013). She stated that "no one knew how" and that they "found emails still more comfortable," but that "now most of our sharing actually goes on Google" (Interview 2, September 2013). In reference to Ray's TE reflection pilot project, Gina affirmed that while the reflection on a common blog was a "fantastic idea," it felt slightly forced, and that she had found "verbal hallway/office discussions" the most helpful (Gina, email, August 20, 2013). She said she reflected and identified potential curriculum changes through "venting/ talking about classes, students, lessons and course content" when "running into colleagues" in the hallways (Gina-email, September 9, 2013). Regarding the online communal reflections, she wrote, "I still felt like I wasn't doing it FOR MYSELF and, thus, not really being honest enough to really explore some of the key aspects of my teaching that I needed to…" (email, August 20, 2013). She later noted that it felt a bit "shallow or two-dimensional" (Interview 2, September 2013). She said that despite there being no work requirement to write reflections for the project, "it felt, like, 'Okay, I'm going to sit down and write one of my required reflections'" (Interview 2, September 2013). Technical concerns may have been at play, as Gina mentioned that with no set-up notifications to see when others had written, "there was no real interaction going on there" (Interview 2, September 2013). She said the faculty never achieved knowledge of best usage of the tool, but also that "it just felt like a requirement. And I found myself kind of thinking more about how I was, what I was, how I was writing things, rather than what I was writing" (Interview 2, September 2013).

In addition to using face-to-face discussion for collaboration, Gina said she found it helpful to speak in person with colleagues for problem solving. When troubleshooting technology problems, she said if she was at home she would "Google it, definitely" and if it was a matter of a "bigger project" she would look up answers herself (Interview 3, October 2013). However, she said that when she encountered difficulties in learning technology tools, she would approach "whoever has their door open [laughter], or, if it's specific, whoever might know" (Interview 3, October 2013). For example, when she struggled with an open-source photo-editing program, she asked a colleague to model it for her (Interview 3). Just before an interview I had with Ray, I witnessed this in action as Gina came into Ray's office for direct assistance in dealing with a Google Docs problem (Ray, Interview 2, September 2013).

6.5.9 Low-tech for YL-TESOL: "I Guess It's a Kind of a Scaffolding Thing"

I noticed that the lessons for the YL-TESOL trainees' microteachings seemed to be particularly low-tech, and Gina mentioned that while it was not a written rule, the use of PowerPoint seemed to be discouraged among the lesson plans made by trainees. She stated that "numerous people" in the YL program had said that PowerPoint was not preferred for trainee projects, but that the system was starting to change somewhat as now trainees were "allowed to use video and audio and all of those things for their practice teachings" (Interview 3, October 2013). However, Gina asserted that the TEs in the YL program "probably could find ways of it, of teaching them how to use it better" (Interview 3). She noted that trainees would often misuse songs from streamed videos by not pre-teaching any content before playing the video. She speculated that neglecting trainee TPACK may be because "first you give them the skills to do it without [technologies]" (Interview 3). However, she also noted, "I think then it would be great to be able to add it and show them how to-how to combine those two things" (Interview 3, October 2013). She elaborated,

> I guess it's a kind of a scaffolding thing like, just learning the skills first and then add them to this. Well, you'll never teach a hundred new vocabulary

> words. You teach five, then you add five, then you add five, then you add five. Um, so I suppose you could switch it and give them the tech first and then add the skills, or do it simultaneously, but still you're going to be, have to build them up somewhere. (Interview 3, October 2013)

Gina said she believed that the modelling of pedagogical and technological skills could "probably be intertwined" (Interview 3, October 2013). Ultimately she felt TEs should build the TPACK of pre-service teachers because technology is "everywhere, and it's also in the classrooms" (Interview 3, October 2013). However, when I pointed out that this did not seem to be a specific goal of the YL program, she pointed out that trainees were "encouraged" to use PowerPoint because the TEs used it, and that technology-wise the program was becoming "a little bit more evolved" (Interview 3, October 2013).

I asked whether the CU-TESOL Programs taught trainees about computer-supported collaborative learning such as how to build blogs, or whether there were any questions about how trainees might use technology in micro-lesson plans. Gina thought such a focus might only occur in a lesson plan document section on materials, where they mentioned in parentheses "PowerPoint, you know, pictures, whatever, but I think that's it" (Interview 3, October 2013). She said that it was something that could be incorporated into the reflections done by trainees, such as questions on how the trainees used technology, "how did it go, what could you have done better?" (Interview 3) She noted that the TEs were "slowly building" this aspect, saying "we'll get there" (Interview 3, October 2013). However, she acknowledged that in her mind, the program could better highlight the technologies in use, such as Google+, and the objectives behind their use.

6.5.10 Digital Native: a Label That Is "Largely Meaningless in Its Currently Proposed/ Connoted Meaning."

Gina spoke about the CU-TESOL Program as "getting there" when it came to pedagogical uses of technologies. I asked her if "getting there" mattered, and she replied, "Absolutely. Are you kidding? It is inevitable" (Interview 3, October 2013).

She mentioned that her lack of a smartphone could be preventing her from modelling some Web 2.0 uses, saying,

> because I don't have a smartphone, I tend to forget how, what a huge part of them it is. And it's just such a, I mean it's-it's like an appendage for them, for the generation, next generations. Um, so, yeah, I think it's pretty, extremely important and inevitable that it'll be put in there and incorporated. (Interview 3, October 2013)

However, while Gina acknowledged that Web 2.0 technology was "part of our students' lives, it's kind of embedded in who we are now" (Interview 3, October 2013), she was doubtful about uses of the term 'digital native'. In a December 2013 email, she sent me a link to a PBS Idea Channel Video titled "Do Digital Natives Exist," (PBS, Dec 2013), an argument against the ideas of Prensky (2001). She later wrote,

> I tend to agree that the label of "digital native" is largely meaningless in its currently proposed/connoted meaning. For me, I guess I still need a clearer definition to take a solid stance. If it just means a person who has grown up surrounded by the current "technology" and is comfortable with it, then those people certainly exist. They know nothing else so accept and expect it as a part of their reality. But as I gather, the term is often used to refer to those who regularly, and almost instinctually, deeply understand and utilize this "technology" as if it were an inherent, genetic and universal trait acquired. As if "computers" were the same as a biological limb. (Email, December 13, 2013).

Gina argued that this reminded her of a Chomsky/Universal Grammar debate, and that it seemed "slightly suspicious" (email, December 13, 2013). She pointed out that the argument might require ""Nurture"/behaviorism to debunk," writing that genetics and natural selection did not "work this this way." She used the examples of the popular mobile game Angry Birds and the industrial revolution:

> Despite how long a kid grows up playing Angry Birds using his pointer finger, his finger will not change. His children will not inherit Angry-Bird-specific pointer fingers… …I also loved the implied point in the PBSIdeaChannel video about how the assumptions/scaffolding upon which the idea of a "digital native" are built rely upon the creation of said technology by "NON-digital natives". The Industrial Revolution was not started by "Industrial Revolution Natives" and definitely did not suddenly make everyone alive at [the] time inherently capable of mastering the complexities of steam production or chemical manufacturing. That would just be silly (email, December 17, 2013).

As she researched and reflected upon 'digital nativism', Gina's comments revealed her interest in scientific thinking and logic and her thoughts on learning in general. She also demonstrated her use of online videos and prompts from discussion with a real-life interlocutor to expand her professional cognitions.

6.6 The Cognitions of Ben in Relation to the Pedagogical Efficacies and Purposes of 21st-century Technologies in His Practice as a Teacher Educator

6.6.1 Ben's High Technological Content Knowledge and TPACK

Ben greatly supported the uses of technologies for educational purposes. He had specialized in educational technology for TESOL and said he very much enjoyed playing around with technology. He told me in his first interview, "I like technology just in general, outside of teaching, I'm interested in [it]. Um, and so I guess it's a, a natural sort of overflow into, into teaching (Interview 1, August 2013).

6.6.2 No Excuse "Not to be Connected in Some Way"

With his Master's in TESOL focused in part on CALL and MALL, Ben had had significant opportunities to consider his own cognitions regarding the uses of ICT for pedagogical purposes. The issue of technology uses came up in his first interview, long before I had revealed to Ben the focus of my research, when Ben expressed his

feeling that digital technologies had a clear place in the PRESET classroom, saying he used CALL and MALL in his classes "all the time" (Interview 1, August 2013).

One theme that arose frequently in Ben's conversations was his concept of the 'connected' educator. A self-proclaimed "inveterate lesson planner" (Interview 1, August 2013), he was adamant that teachers should keep lesson plans handy. Indeed, when I observed him in class, his lesson plan—on his iPad-- stayed in his hand throughout (Observation 1, Observation 2):

> I really think that, um, you know a lesson plan is something that the teacher should have in their hand constantly. Throughout the lesson. You know one of the things I tell the trainees is 'You know if you write a lesson plan, where is it? You know, why haven't you got it in your hand when you're teaching? It should be there.' And I showed them this week, 'You know I had it on my iPad, it's constantly in this hand.' (Interview 1, August 2013)

Despite the potential L2 uses of smartphones in classrooms, they are often eschewed on grounds of disruptiveness (Thomas & O'Bannon, 2013). Ben hinted that the unofficial policy in the YL-TESOL program was for trainees to store their phones during lectures (they were on trainees' desks but not in use in my observation of Gina's YL-TESOL class). Ben said he instead asked trainees to put their phone on 'silent' but leave them on their desks, joking that if they wanted to send out on social media messages about their fantastic class, they should do so. He said he would "turn around" and ask trainees to look up information during the class, adding,

> I don't think there's any excuse for a teacher, or a teacher trainer, or a teacher trainee in 2013 not to be connected in some way, and not to be able to pull up information *[snaps]* straight away. Um, and so the students were quite, they didn't know quite what to make of me telling me to pull out their phones (Interview 1, August 2013).

I asked Ben if the trainees had indeed used their phones in class, and he responded that apart from a trainee who used her dictionary, not many had done so because it was a day heavy with teacher explanations. However, he said he found it useful for trainees to photograph the board using their phones:

> And I said, 'Okay, you can take a copy of this, you can write this down', so everyone stood up and took a photo. And I was like, 'Why don't just one of you do that, and just email it to everyone else?' And they're like, 'It's like the best idea I[*laughs]* 've ever thought of,' because they're not used to using devices in class. (Interview 1, August 2013)

Ben went on to state his bewilderment as to why in an age of smartphones any educator would restrict the use of Internet-connected devices: "you know, there's this ultimate tool in your hand" (Interview 1, August 2013). He said that he also took photos at the end of classes and put them up on the website. He said this was easy for him to do out of a matter of habit, with his iPad constantly with him (Interview 1, August 2013). He noted,

> I mean, essentially, the students have everything ever written about teacher training in their hand, constantly. Now, for curriculum, for instance, if you're looking for content-based curricula, the Internet has a plethora of information. (Interview 1, August 2013).

Ben's ideas on this kind of connection extended to visions of what the future might bring. We discussed Ben's time at the Google Education Summit, in which he had had the opportunity to try out then-emerging technologies such as Google Glass, an augmented reality wearable technology device. Ben, who confessed that he dreamed of a time when he could use such a device for classroom management, said Glass would be useful to access Hangouts and take videos and pictures, but that "obviously" his first call was that if Glass "could sense the student I'm looking at and pop up their name, and their, their latest assessments and my last comment about them, that would be fantastic *[laughs]*" (Interview 2, October 2013).

He went on, noting how it could be convenient to have a GPS system for keeping track of what you had done in a classroom, and for reflection purposes after class. He said that if it could "map out when and where you were in certain parts of the classroom, that would be awesome" (Interview 2, October 2013). Ben also expressed his wish for a seamless classroom management experience, saying "If it were up to me, everyone would have an RFID chip or an NFC chip in their phone, and they'd just beep in as they walk into the class" (Interview 2, October 2013).

In Ben's mind, "the concept of actually being in the office is not all that relevant anymore" (Interview 1, August 2013). He said he "work[ed] anywhere," using his iPad to plan lessons and write reflections on the bus while commuting. He did not worry about the interconnectedness of his various devices because most of what he did was in the cloud (Interview 2, October 2013). He acknowledged this meant that work life and non-work life overlapped, and said he had no real cognition of how much time he spent planning and doing instructional-related activities at home. Any attempt to try to calculate it would simply interrupt Ben's workflow; when working at home, he would "burst and then relax," and would "sort of go down the rabbit hole" of Googling examples to save for later (Interview 1, August 2013). For Ben, it was acceptable that professional life could be a twenty-four-hour-a-day venture. Whereas other TEs such as Luke and Gina disliked being constantly available, for Ben connectivity allowed him to work at his own pace.

6.6.3 "It's a Lot More Interactive Than Just a Static Storybook."

Gina had described an unspoken rule in CU's YL program to limit technology uses in trainees' lesson development. As part of his contract, Ben taught a model kindergarten class for learners of English. The focus was on storytelling and trainees would be in the room observing Ben's teaching. In our first interview, I asked Ben if he planned to integrate technologies into the model class, and he responded that he intended to do so, showing me an example of the classic children's book *The Very Hungry Caterpillar* (Carle, 1969) that he had adapted for his iPad. He said he felt it had language learning pedagogical advantages to a "traditional static

storybook" in terms of interactivity. Educators could use features such as animation, cutting out and eliciting missing words, sound, and "all sorts of things" (Interview 1, August 2013). Moreover, he said he felt that kids "get a real buzz out of turning the page" (Interview 1) and seeing interactive multimedia features. He noted that while popular e-storybooks could probably be purchased, he preferred to make his own, claiming that on the iPad it was "pretty simple, making an animated PowerPoint, it's not that difficult" (Interview 1). Ben said that a teacher-made animated book was better as it could be tailored to the lesson, to activate background knowledge in pre-reading activities in a more seamless fashion. Using the example of *The Very Hungry Caterpillar,* he said,

> So the beginning of the PowerPoint is not actually the story. You can just you know—fruit-- you know, you're eliciting from the kids 'do you know what this is?' You know, 'what's your favourite fruit?' 'Let's have a look at another one, that's a strawberry.' Um, and that sort of leads into the actual story. And you put all of this into one big PowerPoint so you don't have to be chopping and changing and you can just go through it in a linear fashion, you know. So you end up actually with the same PowerPoint a couple of times in one file. (Interview 1, August 2013).

6.6.4 Expectations of What Trainees and Teachers Should Be Able to Do

Ben's cognitions extended to his expectations of what he thought trainees should be able to do with technologies. He described himself as a digital native, a concept that he associated with age. In his view, while most trainees in the program were 'digital natives', he felt that some of the older trainees struggled with technologies. He said with some of the more mature trainees, "you put a keyboard in front of them and you might as well put a brick wall in front of them" (Interview 1, August 2013). I asked if these trainees had smartphones, and Ben replied,

> Yeah, yeah, yeah. Whether they know how to use it is another thing-- you know I think in Korea, just broadly speaking, there's no such thing as a dumb phone. I don't think you can buy a dumb phone anymore. So, even if you have

> a smartphone you may not be using it smart. But, you know, that's a, a broader issue. But in terms of in class, you know, even just looking up a word in the dictionary is, is, there's a start. But again, you put a keyboard in front of them [*sucks in air*], if they can get over that hump and start using the Internet still, it, it, they often can't apply the real world theory that we've talked about to the online. (Interview 1, August 2013)

Despite his expressed annoyance at trainees not having what he viewed as basic technological skills requirements, Ben seemed ready to afford them patience that he may not extend to in-service teachers. Ben was extremely active in professional development opportunities including ones related to technologies for TESOL, and expressed a cognition that all educators, including TEs and trainees should "ABD: Always be developing" (Interview 4, December 2013). In our first interview, he immediately mentioned that was grateful to no longer be working as an administrator. One of the requirements of his job prior to CU was in-service teacher observation. He said,

> When you're a stu-, you know a teacher trainee, you, I give you a bit of latitude. You're, you're learning how to do this whole big thing that we do. You're, you're experiencing new things for the first time. (Interview 1, August 2013)

While Ben did express a desire for trainees to increase their TPACK, he was patient with areas he deemed lacking, as he felt that PRESET candidates deserved much more leniency that in-service teachers in terms of technology uses.

6.6.5 Task-technology Fit: "Horses for Courses"

In talking about his decision-making process when choosing a technology to use or when choosing digital over analogue methods, Ben used the expression "horses for courses" several times throughout our various discussions. He was referring to the idea that ICTs are tools for educators' selection. When I expressed my surprise that Ben wrote notes on the board by hand in dry erase pen and then encouraged

trainees to take pictures of the board rather than just typing and projecting notes in class, he noted that since it was a brainstorming activity, eliciting ideas from groups, it was simply easier and quicker to write in dry-erase marker (Ben, Post-observation 1, 2013; Interview 2, September 2013).

With knowledge of several kinds of software, operating systems, and devices, Ben said that when it came to platforms, he was "pretty agnostic actually, as long as it works" (Interview 1, August 2013), and later affirmed he was "platform agnostic. You've seen my phone is an Android, I have an iPad, um, I use Windows. I have a Mac at home" (Interview 2, October 2013). He found it acceptable to learn how to use a new technology tool if it produced results. Working towards becoming a Google Education teacher, he was well-versed in Google's offerings, but rather than using Google+ for his semester's websites, he had chosen to use one called ClassJump instead, "just because it's nice and simple and there's no, there's no bell and whistles" (Interview 1, August 2013). He pointed out Google+'s drawback of not being able to host documents, "whereas with something like ClassJump that I use, everything is there under one umbrella" (Interview 1, August 2013).

Ben said he opposed the learning of new technologies just for technology's sake. He expressed a belief that whatever was simpler to use in the classroom to produce results and save time was the better choice, whether the form be analogue and paper-based or in digital form. Heading into the Google Education Summit, he was particularly looking forward to learning how to build spreadsheet macros to aid in interpreting results when surveying students in real-time in class. He was already knowledgeable on how to survey classroom participants through their phones by using Google Forms, but said he wanted an instant view of which trainee had input which response. He returned from the Summit in September 2013 with knowledge on how to do this. However, he continued to use and model the "slate" system with trainees: writing responses to elicited questions on laminated pieces of white poster paper using dry-erase markers. He said that while educators should know about mobile phone use, he also felt compelled to show low-tech, easy-to-use systems that trainees would be able to incorporate into their own teaching

contexts.

At times the analogue/digital divide concerned perceived limitations from devices. Ben acknowledged, for example, that his method of taking attendance was not "seamless, by any stretch of the imagination" (Interview 1, August 2013). In his class, the system was to have a different class "greeter" take attendance each time, but since he did not wish to relinquish his iPad security access to anyone else, he had trainees write attendance down on a paper-based register, and then he would "flip it back" (Interview 1) to his iPad after classes. Other times Ben would simply use both a digital and a paper-based solution for the same function. For his planning and reminders related to students he had a collection of paper sticky notes around his desk. At the same time, he used Google Keep, a cloud-based checklist, and would just "tick them off as I've done them. Um, because that's good. It's automatic, it automatically uploads, I can pick it up on any device. You know, that's handy" (Interview 2, October 2013). Looking at his paper sticky notes, he said, "I guess I could have made a note on my fancy iPad um, but it was just easier this way." I asked him whether paper notes were a faster system, and he replied, "Yeah. Yeah. Sometimes, you know, it's just easier" (Interview 2, October 2013).

6.6.6 Security and Privacy

Although all educators need to consider the case of privacy, it is especially imperative for teachers of YLs, as minors are afforded special consideration in privacy laws. Ben was aware of digital security and privacy concerns. He used his own cloud, made on a server in his home, and expressed his dismay at the choice to use what he felt was a leaky Yahoo group for online discussion and planning among educators in the special interest group he had joined in his professional association. He told me Yahoo was "a terrible, *terrible* security risk" (Interview 2, October 2013). He mentioned that he had received spam emails from fake accounts of the group members after online conversations. Nevertheless, he did not bring up any particular concerns about the use of children's photographs on the YL-TESOL Facebook site or in trainees' lesson plans.

6.6.6 Overt Modelling: "Maybe That's Something That Needs to Be Pushed a Little More"

Ben expressed a belief that trainees in the CU-YL-TESOL program could benefit from instruction on how to integrate technologies into their practice. In discussing his belief of the advantages of teacher trainees having pedagogical information available to them, he mused that "maybe one of the skills that, you know, we have to teach teacher trainees is how to discriminate about what they find on the Internet" (Interview 1, August 2013). When I asked him whether this was part of his course, he said it was implicit in his instructional practices. He affirmed,

> it may not be part of my course but it will definitely be part of what I tell them during the course. You know, it's not a, uhhhh, I'd have to flick through a bit [looking for curriculum on iPad] it's not explicitly stated. Um, but just my views and my attitudes on that will come through there. And if, if need be we'll slip in a few things here and there that get them to start thinking about what is a good, well, through the course they look at what is a good curricula and what is bad curricula. Um, it's just making that shift to applying that to what they find on the Internet… (Interview 1, August 2013).

He wondered aloud to me whether the YL program needed to make this more explicit, worrying that even if trainees could "get over that hump" to work online, that they could not apply "real world theory" (Interview 1). He mused that this aspect may need to be "pushed a little more in my, in my planning and in what I deliver in class" (Interview 1, August 2013).

Ben reiterated several times his desire to "master" his content knowledge at his fingertips for the benefit of trainees. He admired a former INSET trainer colleague's strong grasp of concepts within SLA and methodology. At the beginning of the semester, Ben said he planned to model and mention some of the technologies he was using to his trainees, but that grasping content itself took precedence. Nevertheless, he did feel that technologies would "come up" in class when he pointed out his preferred apps (Interview 1):

> I think in uh [one class] next week uh, we're talking about Dewey. Um, keeping notes. So, it'd be a perfect time just to say 'Hey, look. Here is a neat little app that you can use. (Interview 1, August 2013)

Ben stressed that as a new hire, he worried more about grasping the content himself before "adding [his] own little spin on things" (Interview 1, August 2013). To Ben, CK overrode TK.

6.6.7 Considerations for an Learning Management System

Ben suspected that his knowledge of educational technologies may have factored in his being hired by Dr. Cho, and indeed throughout the semester he was brought into consultations and discussions about moving forward with the LMS and with the blended learning course. In our first interview, Ben noted that he was aware that the General Program TEs were using Google+ as a virtual learning environment, and said he thought that it was useful, but that it might have setbacks in moving to a larger departmental platform due its limitations in hosting documents.

Price was a key factor for Ben; he affirmed several times that he chose apps because they were free, for example. His biggest consideration was that an LMS should be free of charge, as he thought institutions generally wasted their funds on expensive LMS. Following the Google Summit, he said he had received explanations on the "granularity" of Google+, over other social networking sites such as Facebook, making the LMS more customizable (Interview 2, October 2013).

6.7: Chapter 6 Conclusion: Research Question #2

This study's participant TEs aligned and differed in their cognitions regarding the pedagogical efficacies of 21st-century technologies in their instructional practice. All five of the participants exhibited views in favour of the pedagogical efficacies of digital technologies in their instruction and a high willingness to incorporate Web 2.0 into their own work. They all expressed a belief about the inevitability of Web 2.0 as a part of modern educational life for their trainees, and optimism for the

future possibilities of instructional technologies. Moreover, the participants shared a perception of the explicit modeling of technologies to trainees as a time-consuming endeavor. The participants differed on a number of cognitions, including their self-perceptions of their own TPACK levels and their thinking regarding the efficacy of shared online reflection. They also diverged in their views of the importance of technological incorporation in comparison to other aspects of the curriculum deemed crucial.

Table 7 Summary of CU-TESOL Teacher Educators' Cognitions in Relation to 21st-century Technologies

Part-icipant	TPACK self-efficacy?	Tech background	Key tech philosophy	Do trainees need it?	Security/ Privacy worries ex-pressed?	Misc
Ray	Very high	Pro tech assistant	"It's the world we live in now"	Yes	After I brought it up	
Jeff	Very high	An ed tech course in uni	Content, tech, pedagogy: "separate"	Yes- but pedagogy first	No	
Luke	Average-high	Some "outdated" ed tech in uni	"Just follow along"	Yes	No	
Gina	Very high	Low-tech alternative schools	Anyone can learn it	Yes	No	Gami-fi-cation
Ben	Very high	M.A. Ed tech/TESOL	"Horses for courses"	Yes	Yes- but not for YL courses	

CHAPTER 7: WHAT FACTORS INFLUENCED TEACHER EDUCATORS' DECISIONS TO INTEGRATE 21ST-CENTURY DIGITAL TECHNOLOGIES INTO THEIR PRACTICE?

7.1 Chapter 7 Introduction

I have described the focal participants' professional practices (Chapter 5) and cognitions (Chapter 6) in relation to 21st-century digital technologies. In this chapter, I link cognitions and practices with other elements as I investigate factors related to the participants' decisions to integrate these technologies into their pedagogies. In doing so, I employ constructs from the UTAUT and the UTAUT 2, which include the following factors as influences on behavioural intention: 1) performance expectancy (PE), 2) effort expectancy (EE), 3) social influence (SI), and 4) facilitating conditions (FC), with the following mediating factors influencing the four indicators: 1) hedonic motivation, 2) price value, and 3) habit, and to a certain extent, 4) age. Gender, the fifth mediating factor is not included in my analysis, as I did not identify it as a salient influential factor.

As mentioned earlier, while the UTAUT is intended as a prediction model for organizational contexts, the UTAUT 2 extends this model to better ascertain individual acceptance and use. According to Venkatesh et al. (2012), consumers differ from workers in organizational contexts in two ways. First, HM (enjoyment) is a bigger predictor of use for consumers. In addition, the monetary price of products is a more substantial concern in consumer contexts than in worker ones. Venkatesh et al. (2012) also added the construct of "habit" to their model, as some studies conducted since the time of the UTAUT had found this to be "another critical predictor of technology use" in addition the older construct of behavioural intention (p. 158).

In the CU-TESOL Program context, the TEs embodied both the roles of workers and of individual consumers. Although they were employed within an organization and were the recipients of outcomes from technological and pedagogical decisions

made by the organization, much of the time the TEs were consumers of technological products and were free to make their own choices on technology adoption within their practice. Like other aspects of educators' lives, the lines between work and personal lives of the TEs frequently intersected (Johnson, 2006), with 21st-century digital technologies a prime example of this crossover effect.

7.2. Factors Influencing Ray's Intentions to Integrate 21st-century Technologies into His Practice

7.2.1 Performance Expectancy in Ray's Integration of 21st-century Technologies

In the UTAUT, PE is defined as "the degree to which an individual believes that using the system will help him or her to attain gains in job performance" (Venkatesh et al., 2003, p. 447) while effort expectancy (EE) is "the degree of ease associated with the use of the system" (p. 450). With the exception of the BLP under development, in the General Program Ray had no formal requirement to use any 21st-century digital technologies at all apart from email. Rather, it was Ray who chose to incorporate these technologies into his own teaching, and who then, through his capacity as the coordinator of the General Program, created a requirement that others use them. Like the educators in Petko (2012) and Wang and Wang (2009), Ray expressed a desire to let PE regulate decisions on technology adoption.

The adoption of SugarSync was PE-motivated to enhance content-sharing interactions in what Ray felt was once a disorganized program. PE was also at the core of the adoption of Google+, as attested in the reasons given in Ray's webinar, proceedings paper, blog, and interviews (see Chapter 6). The key managerial/pedagogical reason was that it would allow for the easy uploading of and commenting on videos for the video reflection after the microteaching. As Ray put it, "They were doing everything EXCEPT look at themselves *[laughs]* as they were teaching. And that was what I sort of said guys, the, the technology's here. Let's, let's just use it, you know" (Interview 1, August 2013).

Ray spoke extensively of the PE advantages of online video reflections. One aspect

was cultural, to address the problem of trainees' face-to-face in-class peer feedback, where they would "give compliments and suggestions, and then the teacher, me, I'm supposed to say something" (Interview 1, August 2013). Moreover, with the video reflections, nobody had to give feedback on the day, "when everyone's all stressed out an exhausted" (Interview 1, August 2013); instead, responses could be carefully considered. In a later member check, Ray clarified that,

> In-class peer feedback in our context is largely constrained by the fear of public threats to positive face – [students] aren't going to offer useful genuine feedback in a public forum. Sharing videos, filling out detailed peer-feedback forms, and then discussing them in the relative privacy of the 'simultaneous group' format is much more constructive. (Email, November 15, 2015)

Once Google+ had been adopted, Ray found it satisfied PE in allowing all program members better communication, and would benefit Korean trainees' opportunities to practice their English by offering "new alphabets" not afforded by more familiar technological tools (Interview 2, September 2013).

7.2.2 Effort Expectancy in Ray's Integration of 21st-century Technologies

Although PE was important, EE naturally played a role in Ray's decision-making. SugarSync had a relatively easy learning curve, and simplified file synching across computers. However, the intention to use an LMS such as Google+ was not necessarily EE-motivated. Ray taught in a brick-and-mortar environment, and there were paper-and-pencil options available to distribute and collect assignments. Trainees were given a bound paper copy of pdf files that constituted the textbook. Analogue techniques were in abundance elsewhere in the program. Ray's impetus for adopting the LMS was video upload and sharing, with reflection being the main point. These all pointed to PE as a primary motivator.

Nevertheless, the decision to use Google+ rather than Facebook or Naver (sites familiar to trainees) was motivated to a certain extent by EE. Ray was already a Google product user and as he himself pointed out, the use of such technologies

was not just for the sake of trainees, but to simplify trainers' lives as well (Interview 2, September 2013). EE also acted as an adoption barrier even within Google products. Ray said he had knowledge of how to use certain functions of Google Analytics, but that he had not "done anything with it" (Interview 4, December 2013). Going to the next step to learn how to apply the functions seemed to be a barrier.

7.2.3 Social Influence in Ray's Integration of 21st-century Technologies

Venkatesh et al. (2003) define SI as "the degree to which an individual perceives that others believe he or she should use the new system" (p. 451). Three key factors underpin this construct: compliance, internalization, and identification. In voluntary contexts, internalization, and identification are key to the construct of SI (Venkatesh et al. 2003, p. 452), whereas in mandatory settings SI is strongest at the beginning stages of individual exposure and experience with technologies, and the factor of compliance has a great effect. In the UTAUT and UTAUT 2 models, SI is a direct determinant of the intention to use a technology.

Venkatesh et al. (2003) consider four components of SI: 1) perceiving that behaviour-influencing people believe you should use the system; 2) feeling that people who are important to you think you should use the system; 3) perceiving that the senior management has been helpful in using the technology; and 4) perceiving that the organization in general supports the use of the system. For Ray, SI of the first type figured heavily in discussions about his professional blog. He spoke about getting a "visual CV" with "with pictures and reference letters and stories from all the different phases" of his career up on his blog because he wanted to "develop the skillset, the technology literacy skillset more" (Interview 1, August 2013) in order for potential employers to witness his technology skills. Ray spoke of transitioning soon to online teaching. He noted the typical age cap for teaching in South Korea (60 years), and said he wanted to attain "certain financial targets" before being "shoved out of institutions" (Interview 1). He said he had "ten years to learn how to make a living online. And, and develop a following enough that I can do that" (Interview 1). He agreed that this had in part prompted his blog. Ray also

spoke of online professional visibility replacing a doctorate, saying that since he was not doing a PhD, he "need[ed] to be engaged in, in professional work" (Interview 1, August 2013). This comment suggested his perceived need to demonstrate to the outside world, and perhaps to himself, his currency as a practitioner. I asked him if he ever worried about publicly airing private teaching thoughts through his blog, and he replied,

> my philosophy I've got now is that's the way the world is. Um, if you're not comfortable with a public profile I think you're going to be uh, you're going to be competing for far fewer jobs and much more on the periphery than someone else. (Interview 1, August 2013)

For Ray, SI meant more than just his personal work as a TE, as it also encompassed the reputation of the program itself and its viability. This is a role of EL educators noted by scholars such as Farrell (2011). With the TESOL Program's status as one private option for paying students/clients, trainee numbers mattered to Ray. When discussing the trust Dr. Cho placed in him to make program decisions, including ones about technological innovations such as the video reflections, he said that Dr. Cho knew that he was "as vested as she is in keeping our numbers up and keeping the program at the, the Cadillac of programs in Korea…" (Interview 1, August 2013). He related the reputation of the program to the implementation of technological innovations saying,"our program has a reputation for, uh, much more" than others, and "our program is known for uh the amount of interaction that the students do in every class" (Interview 3, November 2013).

Ray indicated that SI and interactions were drivers for technological innovation in the program. He spoke to me about Lave and Wenger (1991) and Vygotsky (1978):

> This table? Your dress. Uh, the posters in the classroom downstairs, and the final microteaching and lesson plans that students produce downstairs are products of, um, knowledge processing. Products of, uh, social interaction. Products of two people negotiating with each other their own identities.

> That's really all it is. Um, the, the any thing, material, has evolved out of human social interaction, right? Um, and all interaction is learning… (Interview 1, August 2013).

It was evident that SI was at play in the program's eventual decision to use the video-reflections on Google+, although Ray's various descriptions of the process differed somewhat. Ray told me he had first brought the video reflection idea to staff after having checked out the work of professors who had "done some great writing about it. Which is terrific. That allowed me to justify it to our guys" (Interview 1, August 2013). He said, "I had to coax my faculty into doing it. That's all." (Interview 1, August 2013). However, he also claimed that the switch to Google+ had developed organically in a "sort of a very natural evolution" with Jeff (Interview 3, November 2013). He noted that another TE and Jeff had had their trainees upload their video recordings on Google Classroom, a Google+ precursor. Combined with his own use of Google products such as Blogger he said, "all of these are sort of constellating around Google services" (Interview 3, November 2013).

Nevertheless, despite this acknowledged influence from others in the program, Ray said that watching others was not the true impetus for his acceptance and use of technologies. He told me it had more to do with an approach to teaching, "which is to constantly be looking for ways to, uh, contemporize and evolve and sustain the validity of-of the approaches to teaching, that I try to do" (Interview 4, December 2013). Ray had several influences in that regard. Foremost was his Master's mentor, who "didn't use technology at all" and who would be "frantically copying his overhead transparencies" to use as handouts (Interview 4, December 2013). Ray noted, however, that the professor was not an anti-tech educator, but rather had an "unquenchable hunger for a deeper understanding of how interaction works and how learning works and how language is a, is a by-product of those things" (14, Dec 2013). Ray felt that this had influenced him to focus on interaction and communication. He added that his background performing in an acting company had taught him the importance of "constantly working and reacting to everything

that we noticed" (Interview 4, December 2013). Ray said these experiences had shaped him professionally by making him,

> constantly, happily, hungry for understanding interactive learning processes. Today there is a ton of technology that impacts those. [K: right]. That's the only difference. If there weren't a ton of technology to influence those, it'd be something else I'd still be looking to, you know. (Interview 4, December 2013)

In short, Ray considered a series of mentors to be social influencers but not necessarily technological ones. Like the instructors in Webster and Son (2015), Ray thought of the technological aspects of his life as a TE as being integrated into a larger part of his being that was interested in the connections between interaction and learning processes.

7.2.4 Facilitating Conditions in Ray's Integration of 21st-century Technologies

Facilitating conditions are defined as "the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system" (Venkatesh et al, 2003, p. 453). In terms of technical infrastructure, Ray said he felt that CU had the right conditions for Web 2.0 learning: virtually all of his trainees had a smartphone, and the school had computers in the classrooms and fast wifi. Ray viewed the integration of technologies in South Korea as a kind of inevitability. He stated that schools in the country that made students leave phones at the door were "flogging a dead horse" and pursuing a "futile endeavour" (Interview 1, August 2013), and that it was improper to take adults' phones away from them. In fact, Ray viewed the constant changing of society as a whole as an impetus for keeping up with changes in teaching. He was philosophical on this, saying,

> the classroom that we're in today is going to be at least a little different than the one we're in tomorrow. Not only because technology is different but the people in it are different, too and that means they're going to be to look at it different, and so on. So as long as we embrace the idea of change, then it's

> really easy to stay engaged and happy and excited about your work. If you keep trying to stop things from changing, either the control freak that a lot of us teachers are and say, 'No, we're going to do it this way, we're going to do it this way,' then, then it's a recipe for stress. Job dissatisfaction, low morale, and all that stuff. (Interview 1, August 2013).

Ray also said he felt he had the support from management to implement a social media-enhanced learning environment, and had been given enough authority to develop programs. When I asked him if he needed to get approval from Dr. Cho to move ahead with ideas like the taped video reflections, he claimed that she trusted him and knew he stayed "ahead of the game more or less" (Interview 1, August 2013). Ray viewed himself as a social influencer in bringing CU's TESOL Program online, saying he "pushed" Dr. Cho to move in the direction of moving to greater technology integration (Interview 4, December 2013). He said that Dr. Cho remained far enough removed from the Google+ project that when she started to move forward with a blended learning program (BLP), she needed to request that Ray sit down and specifically show her the Communities. Ray added that she was "extremely impressed" with how the TEs had put together the video project (Interview 2, September 2013).

Still, in terms of institutional support for working with different technologies, Ray mentioned a lack of support from the CU-TESOL Program. In response to the questionnaire item 'Have you had sufficient opportunities to work with different technologies?' (Appendix H), Ray responded that he had, but that he had made all the opportunities himself (Interview 4, December 2013). I found that this dearth of support also materialized in the events leading up to the creation of the BLP, detailed in Chapter 8.

7.2.5 Hedonic Motivation in Ray's Integration of 21st-century Technologies

While the UTAUT is intended as a prediction model for organizational contexts, the UTAUT 2 extends this model to better ascertain individual acceptance and use. A construct not present in the original UTAUT is that of hedonic motivation (HM).

Brown and Venkatesh (2005) assert that HM—the "fun or pleasure derived from using a technology (Venkatesh et al, 2012, p. 160)-- is a key determinant of technology acceptance and use.

As mentioned in Chapter 6, Ray was "interested in technology" (Interview 1, August 2013) and said he connected his life to his work and interests, keeping them "all kind of turned on" as much as possible all at the same time" (Interview 4, December 2013). For example, after a MOOC he was taking had lost the element of fun (Interview 4, December 2013), he abandoned it. His pedagogical use of Google+ was deemed "a natural result" of his general interest in technologies (Interview 2). He was attempting to "activate" in himself an interest in app-building over the winter of 2013.

Ray's HM overruled most anxieties. An area often cited as a barrier to innovations among educators is the fear of looking inept or vulnerable in front of students (Alfi, Assor & Katz, 2004; Bullough, 2005; Jauregi et al., 2012). In Ray's case, teaching first-year students in CU's credit English courses had given him opportunities to experiment with technologies before taking them to his TESOL trainees. He said that this had "transferred back" into the TESOL Program as it had led to searching for more "inductive kind of discovery based learning than had originally been in the course" (Interview 1, August 2013), leading him to try out tools such as Twitter (Interview 3, November 2013).

7.2.6 Price Value in Ray's Integration of 21st-century Technologies

CU-TESOL TEs were not required to use the university-wide LMS. However, since they also had no allocated budget to purchase a different one, the platform had to be free of charge. Nevertheless as Ray pointed out, he considered free-of-charge platforms beneficial for their extended ability to be used in the outside world after university. For Ray's personal professional technologies, he was willing to invest in devices, but selected among the abundant free platforms in 2013—e.g. MOOCs, apps—when price value did not compromise PE.

7.2.7 Habit in Ray's Integration of 21st-century Technologies

Ray was experimental in his pedagogical integration of new technologies. Rather than acting as a barrier to technology adoption, for Ray, years of habit in infusing his pedagogies with technology-enhanced learning seemed to mediate positively on his behavioural use. However, it is possible that habit may have informed the EE of reliance on Google products over the adoption of some local alternatives, and may have impeded his investigation into the uses of the LCD screen in his classroom.

7.2.8 Age in Ray's Integration of 21st-century Technologies: Not What the UTAUT Predicts

The UTAUT 2 model's mediating factor of age generally predicts that older users are less likely to adopt a new technology. In Ray's case, while it was true that age was mentioned in our discussions, the influence of age took the form of Ray's recognition of an approaching time limit for employers in the ELT world of South Korea and beyond. For professional options beyond CU, Ray was "always looking, always slightly worried about what happens after" (Interview 4, December 2013). Age did seem to influence Ray's intentions to integrate 21st-century digital technologies into his practice. However, rather than relating with the UTAUT 2's prediction of a lower age correlating with a higher likelihood of adopting a technology, Ray's decisions were partially marked with a professional concern linked to his potential remaining years in the workforce.

7.3 Factors Influencing Jeff's Intentions to Integrate 21st-century Technologies into his Practice

7.3.1 Performance Expectancy in Jeff's Integration of 21st-century Technologies

PE was a factor that arose frequently in conversations about Jeff's pedagogical decisions, including the uses the 21st -century digital technologies. He said he avoided using technology just for the sake of it, and due to his awareness of different existing options, he chose carefully in terms of the usefulness of technology to job-fit. As he stated: "It's always like I get what I need" (Interview 4, December 2013). He had his list of desired functions and said when he read an

article online specifying that something on his technological function list was possible, “it’s just the matter of figuring out how to use the actual thing, looking at whatever it is” (Interview 3, November 2013).

Jeff used the example of the micro-teachings as something that was better served through the use of technology, saying the faculty had thought that trainees “needed to get more out of it” (Interview 4, December 2013). To Jeff, instant peer feedback limited student teaching time, so the faculty “doubled the amount” they taught by using feedback through technology; trainees could “get more, and they do more reflection” (Interview 4, December 2013).

Jeff was aware of options of technologies and made seemingly informed decisions about PE. In discussing how he had chosen Google+ over other forms of possible LMS he said the faculty had been experimenting with another popular LMS, Edmodo, but that it lacked functionality for their purposes, being too slow with “loading and posting and notifications.” He said, “It's just Edmodo, it's not really integrated well. Uh, so I mean it works, but uh, for our purposes uh, Google+ does better” (Interview 1, August 2013).

He mentioned being drawn to the increased functionality of Communities over Circles. When he had tried Circles with his classes, he had found that they “seemed to work” but “didn’t have a lot to offer” (Interview 2, October 2013). When the Communities function became available, with the ability to add links, organize comments by class, and connect to Blogger, Jeff said it was easier to get others on the faculty on board and use it with the trainees. He said the development and changes to Communities “really made it feasible” (Interview 2, October 2013).

Jeff gave similar functionality reasons for rejecting another popular social media site, Facebook. Although there was a CU-TESOL Facebook page, Jeff said he “wouldn't want a group on there” as it was too difficult to “create and control specific groups.” He said people used Facebook “for a totally different kind of interaction” (Interview 2, October 2013).

Course content seemed to be at the heart of Jeff's technology-related decision-making. He spoke, for example, of how a careful tweak in the Methodology course was oriented around making a task more focused on relevant content. Rather than write out scripts beforehand of their teacher talk during micro-teachings, trainees would transcribe five minutes of their teacher talk and analyze their speech for errors. Jeff said the trainees had been reflecting "on all aspects of, of the, their micro-teaching, but, this is one area that was kind of missing. And it also, uh, the lesson plan had always been somewhat disconnected from our course content." Jeff had tweaked the system with the hope that trainees would focus more on content related to methodology and to the course.

Content also figured heavily in his stated decisions for choosing to move his paper-based Academic Reading Circles project to a digitally-based community. Jeff's emphasis on task-technology-fit was around the PE to enable better learning of SLA content. His blog stated that educators were foolish to believe that teacher trainees could connect course content to their own teaching if they only understood the gist of a text (Jeff-Blog-Spring-2013), and his primary espoused goal for the reading circles was to foster in-depth reading comprehension. He told me that the project involved some classroom flipping whereby trainees discussed the topic online before they came in to face-to-face classroom discussions and lectures, encouraging them to focus on "questions that they haven't been able to answer, in that, in their group. And they also have a fairly good understanding of the material before they come in" (Interview 2, October 2013). He also found that with the online reading circles, his "contribution was minimal, and [he] like[d] it that way" (Jeff- Blog-Spring-2013).

Jeff elaborated on his motivations for the Academic Reading Circles changes. He explained the task-technology fit in terms of PE and EE. With the specific roles set up for each person, Jeff viewed the reading circle as a language learning tool (Interview 3, November 2013). I asked him why he decided to have people post online instead of in class. Jeff said that there was no time in class and that the

current system of doing comprehension questions for homework was no indication that trainees would "get the lecture" (Interview 3). With different roles and by having trainees collaborate Jeff felt they could interact more with each other and with the material. It also offered a way to get everything done outside the class and lightened his workload while increasing efficiency (Interview 3, November 2013). In our final interview, Jeff elaborated more on this task-technology fit for the literature circles. We talked about how the switch to a technological-based delivery system had brought with it increased performance of the task in terms of content, since even "just understanding the content is enough [for a trainee] to become a better a teacher" (Interview 4, December 2013). He said the circles and blog provided an opportunity to "make [trainees] interact with each other, compare, uh, their own opinions about the-the topics. So it just, it made everything easier" (Interview 4, December 2013). He also stated that he felt that by that semester they had "got everything right" with the technology and that by next semester, could "focus on teaching" (Interview 4, December 2013).

7.3.2 Effort Expectancy in Jeff's Integration of 21st-century Technologies

Learning a new technology tool typically takes time and effort. In the case of the Google+ system, Jeff indicated that ultimately EE was a factor in selecting the Google+ system, and one that was tied into PE. He said,

> We had things that we were doing things that we wanted to make easier. [Ksan: mmhmm] Uh, and then, you know, after playing around with these tools a little bit, we can do the same thing, and the students don't do any more work, but the work they do is more interactive, or more in depth, and we do less work. So, that-that's kind of the sale for the initial, uh, learning of the tool. (Interview 4, December 2013)

On a more personal level, Jeff mentioned that he used the Google+ green dot/red dot notification system in order to facilitate contact with his trainees without overburdening himself with a manual checking system. Like Ben, Jeff enjoyed being available to trainees at all times.

EE played a part in Jeff's decision to use his whiteboard instead of a projector. He talked about the whiteboard as being the basic technology of the classroom. I asked him why the whiteboard would be considered the basic component if a classroom is set up with a projector. Jeff said,

> even though [a projector screen] is technology, it's not easy to manipulate. You can't just cross it out, you've got to backspace and click. On the board you-you're free to do whatever you want. (Interview 3, November 2013)

Most teacher training programs include a live practicum, and I was curious as to why CU did not at least incorporate a component whereby trainees observed teachers. Jeff pointed to EE as the key barrier to incorporating a practicum component. When he mentioned he wanted the trainees to do something more practical, I asked him why CU did not have the trainees observe or teach a real class. Jeff simply replied, "We can't." When I pressed further, he said there was "no way" to get all of the trainees into classrooms, asking, "How will I grade them?" (Interview 2, October 2013). It was apparent that for Jeff keeping trainees on a clarified grading path was a core responsibility. I continued, mentioning that I had noticed CU's TESOL Program had no alternative assignments for trainees. I asked him if it was better to just have one assignment. Jeff mentioned issues of a heavy grading workload and of the worry of not being able to justify grades to students. He said that with alternative assignments, "students will complain" as there needed to be consistency. Jeff acknowledged that this was not something ever talked about in the program and that that TEs did not "have that flexibility" (Interview 2, October 2013). He mentioned that finding a teacher for a practicum would require permissions from principals and parents, complicating matters (Interview 2, October 2013).

In addition to a lack of a practicum due to logistical and EE issues, a high EE led to other useful, but time-consuming tasks not being done. For one assignment Jeff

said, "I realized I need to make better directions and screenshots, and that kind of thing, which is, it kind of, takes a while to do" (Interview 3 Nov 2013).

7.3.3 Social Influence in Jeff's Integration of 21st-century Technologies

Jeff told me that outside of mandated work programs (such as the online course), he did not perceive any particular social pressure to adopt any certain technology. He said, "Technology, it-it's always a-a means to an end. It's never something I have to learn" (Interview 4, December 2013). At the same time, however, Jeff stated unequivocally that Ray had been influential to the way Jeff had adopted technologies in his practice. He mentioned that Ray was "always, uh, posting things about new technologies" and that if something sounded interesting to [Jeff], he would follow up on it (Interview 4, December 2013). When I asked him what had prompted him to start a blog, he laughed, saying "[Ray] told me to" before discussing personal reflection storage possibilities inherent in blogging and the potential advantages for him career-wise (a benefit also noted by Ray) (Interview 1, August 2013).

Ray's relationship as a social influencer was important, but as a coordinator, Ray had the power to act as a gatekeeper of technology integration or adoption to a certain extent. In our third interview I asked Jeff if Ray had kept things back in terms of the adoption of the Google+ system. We talked about how Jeff had had the idea a while before it was widely adopted in the program. Jeff stated,

> I said this is something we should-we should look at. And, uh, you know, Ray said, we looked at it and everybody was kind of hesitant. So we tried it out as a faculty circle. And, uh, he was like, 'No, it's, you know, not-- it doesn't do what we need, maybe we should have Facebook, or something else.' But I-I did it anyway with one of my groups, and I thought, I'll do it and let you know how it goes. And interacted a little bit with my group, and then the next-- during one of the breaks the Communities, uh, came out, and then I said, 'Hey, this does what we wanted, this was, this is what was missing. Um, so let's try it'. (Interview 3, November 2013)

Jeff experienced SI from Ray to start a teaching blog, but said he thought it was beneficial personally and "career-wise as well." Online colleagues were now the SI. He said "now that everybody's online, it's, it's easy to get feedback from a variety of sources" (Interview 1, August 2013) including tweets and followers. To Jeff, a wider personal learning network on the Internet providing feedback on the ideas he had disseminate acted as a type of SI to continue doing the blog. He said, "the feedback and comments are very constructive" (Interview 1, August 2013).

Jeff's teaching models were researchers and professors working in the field of SLA and were not necessarily forthright users of 21st-century digital technologies. He maintained that he got ideas from them, but said that as these researchers tended to be in big universities with their own kind of online systems, he had had to try different approaches (Interview 4, December 2013) in incorporating technologies. His instructors in his doctorate program, however, exerted social influence on Jeff's integration of 21st-century digital technologies in terms of his use of language corpora in teaching about second language acquisition. He said he would see information in class and then wait for the Internet to catch up. He told me, "Everything I've done related to corpora comes from a few of those classes that I'd taken. [K: mmhmm] Um, and those, the software that was there years ago is now, you know, it's free on the Internet, free to use (Interview 4, December 2013).

Nevertheless, while the wider world of TEs on the Internet influenced the way that he incorporated technologies into his teaching, Jeff said he did not discuss ideas with colleagues around South Korea working in similar programs. Although he claimed there was "no way to get in touch with them," he admitted he did not know who the people were and that he had not reached out (Interview 2, October 2013).

Overall, it seemed that Jeff was more of a social influencer than a follower for technologies among colleagues. In speaking about the LMS, he told me that when implementing new technologies, "sometimes all you got to do is just kind of break,

break through and then let the mass, you know, follow" (Interview 4, December 2013). On the topic of SI and his leadership as a subject coordinator, he said,

> If you're the leader, and you know you've chosen the people you want to work with, you know, then you should have chosen people that, uh, do their job as well as you do and better, and then, uh, you give them room to go do it and make your mark. (Interview 4, December 2013)

Jeff tried Google Communities and Edmodo to compare their worth as a potential LMS before encouraging his colleagues to use them.

Unlike with Ray, the reputation of CU's TESOL Program and its market position did not seem to influence Jeff's adoption of technologies, although he did at one point note his surprise that CPD and networking were not more actively encouraged as they could "raise the profile of the school" (Interview 3, November 2013). He said he rarely considered marketing issues although he admitted that faculty "obviously" knew the numbers about market share (Interview 2, October 2013). He was aware that the program made efforts to safeguard their materials, saying "I guess people at the top" have always been protective. You'll notice the big watermarks on so many of the things" (Interview 2, October 2013).

7.3.4 Facilitating Conditions in Jeff's Integration of 21st-century Technologies

Jeff also noted that in general, there was no explicit requirement from administration that professional development or scholarly pursuits occur, saying it was individual faculty members' decisions to "get better" (Interview 3, November 2013). He said support from administration came simply in the form of reimbursed registration fees for a local conference. In other words, outside of the forced confines of the soon-to-be blended program, Jeff perceived little SI coming from administration higher than Ray that impacted on whether or not he adopted and integrated technologies into his practice. At the same time, the FCs in terms of professional development to use technologies were mixed. Jeff was allowed to experiment pedagogically and had the technology to do so. But he had no particular

administrative support to experiment until Ray had decided to adopt the Google+ Communities and create an atmosphere in which it could progress.

7.3.5 Hedonic Motivation in Jeff's Integration of 21st-century Technologies

HM seemed to be an influential factor in Jeff's adoption of 21st-century technologies in his teaching practice, and he described tech integration with words like 'fun,' 'like,' 'optimistic' and 'playing around with technology' (see Chapter 6). Jeff's enjoyment and sense of duty as a teacher intermingled. I asked him why he would be attending a seminar on how to use the interactive LCD screen since he already knew he would be leaving the school soon. He said, "Well even, I like to-to learn how to use it. A lot of the students will encounter them, so it will be good to have them interact a little bit" (Interview 3, November 2013).

7.3.6 Price Value in Jeff's Integration of 21st-century Technologies

Price mattered in Jeff's adoption of technologies, and if he knew about a technology he liked he would spend the effort looking for it for cheap or for free. He told me, "I've always found that if you look hard enough, you find it. No matter, you know, what it is" (Interview 3, November 2013). He gave the example of needing to know about statistical regression for his doctoral work, and thinking, "Where is it, how can I get it, how can I get it free, where is the cheapest one?" (Interview 3). On the Internet, he said, "it's all there" (Interview 3, November 2013). Jeff mentioned that with the corpora-related information he now hoped to apply to his teaching, once-costly software had become free of charge (Interview 4, December 2013). In other words, the price availability of a tech-tool had years later influenced Jeff's incorporation of a skill he had previously acquired in his graduate courses.

7.3.7 Habit in Jeff's Integration of 21st-century Technologies

Although Jeff said he enjoyed learning new technologies, it was clear that habit influenced the way he used them. Although he had a projector and computer on which he could type notes in class, he said he continued to use a system in which he would leave the screen up to expose the whiteboard, project images on the whiteboard and then write and erase directly on the board as the class went

through the slides. He said he had been doing that system since he had been in the CU-TESOL Program. He admitted, “It's a little hard to see, uh, in the back of the room, but, with the lights down, it's okay” (Interview 1, August 2013) Although the system had flaws, (indeed, I was unable to see some of the board-work when observing him from the back of the class), Jeff had gotten used to it, and had not moved on to another system despite the availability of a more advanced technology.

7.4 Factors Influencing Luke’s Intentions to Integrate 21st-century Technologies into His Practice

7.4.1 Performance Expectancy in Luke’s Integration of 21st-century Technologies

PE relates to what a TE aims to be able to do with a technology. While others among the participants highlighted the learning of content as a primary goal, for Luke more emphasis was placed on the elements of language proficiency building, trainee engagement, and pedagogical training.

On numerous occasions, Luke mentioned to me his role as a builder of language proficiency. He said that one effect of the new team-teaching system was that trainees interacted with each other in the target language and would be “forced to negotiate meaning,” which he felt was good for language proficiency building (Interview 1, August 2013). He also expressed an internal struggle on giving speaking feedback due to worries about trainees’ affective discomfort (Interview 3, November 2013), and so he used whole-class recasts (Ellis & Sheen, 2006). About written feedback, Luke said it was a “tough thing” to strike a balance between how much feedback trainees said they wanted (“a hundred per cent”) and what he felt was appropriate (Interview 3 Aug 2013). He mentioned that for written work he had been aiming to give less direct error correction, and make more “general feedback” (Interview 1), but that he still used a symbol system to promote noticing. He said he would correct errors he felt trainees would not be able to recognize themselves. “If there’s an article missing and I feel like if I underline it they would never guess that's what it was…I might supply it, or I might write like "ART" for article.” (Interview 1,

August 2013). In his global notes on trainees' assignments, Luke added numbers to errors such as with countable versus uncountable nouns, and wrote a type of footnote system to track errors.

Moreover, Luke hoped to use technologies to make the CCC course more language focused (Interview 2, October 2013). On the usefulness of Google Communities comment sections, Luke remarked that with the system, trainees were "using English, which is cool" (Interview 2, October 2013).

Luke also brought up several instances of how he deemed it important to build trainees' pedagogical skills. For example, he said the team-teaching project contributed to "just overall teaching skill-wise, they can kind of help each other. Two heads are better than one" (Interview 1, August 2013). Luke said the addition of the reflection to the videos in the program had been "huge" (Interview 1) because it contributed to trainee autonomy, reflection, and accountability for their own path as teachers,

> to get them kind of in the process of kind of thinking more about their own, their own development as a teacher and that they do have a role in it. It's not just, 'Come here, sit down that's going to happen'. They do have to be active also. (Interview 1, August 2013)

Luke stressed trainee autonomy in general. He felt that even the term "trainer" indicated too structured a relationship and that training in the CU-TESOL Program was overly "robotic" (Luke, email, October 2013). In discussing the CCC course, Luke mentioned changes that he hoped to make that would reflect a further emphasis on future pedagogical application. He said that the course was "a little bit too touchy-feely for [him]" (Interview 2, October 2013) and that given the chance he aimed to make it both more language- and pedagogy-focused. He had worked to convince Gina to add a lesson on the linguistic underpinnings in teaching politeness, to raise trainees' "awareness of how English speakers do use indirect language, and it does matter" (Interview 2, October 2013).

Luke discussed reasons to incorporate 21st-century technologies in concert with these stated inclinations toward language proficiency improvement, pedagogical skills for trainees, active engagement, and encouragement. He said he had some reservations about overuse. In response to the TPACK questionnaire item, "Do you think it's important to integrate technologies…" he responded: "I do think it's important, but I also think it can be overdone" (Interview 4, December 2013). He cited his professor's comment on a study where they were "looking at how multimedia used in a university classroom is actually less effective than just someone with a marker and a board…" (Interview 4, December 2013).

However, Luke also pointed to numerous performance-related benefits. He asserted, for example, that incorporating an Internet-video communication project to link trainees to global interlocutors would be beneficial for CCC practice. He wanted some sort of online system that would acknowledge trainees' late submissions while at the same time providing them with an encouraging message. He felt that the online version of the Academic Reading Circle project was "really cool. They're, I can see how they're taking the reading" (Interview 2, October 2013). Still, while Luke acknowledged the benefits of such ICT-related projects, he had not yet taken the initiative to try them out. It became clear through my assessment and Luke's own evaluation that the barrier of high EE was often greater than the affordance of high performance expectation.

7.4.2 Effort Expectancy in Luke's Integration of 21st-century Technologies

Luke affirmed that he had had sufficient opportunities to work with different technologies, but that he had not always taken them (Interview 4, December 2013). In many instances he expressed a workflow management preference for analogue methods over online-based techniques, even while he acknowledged that they could reduce performance. In discussing assessment, for example, he mentioned that "all the assessment we do here is mostly paper based assessment, like composition or-or quizzes - which is probably not the best way" (Interview 4, December 2013), but at the same time he said he felt that collecting papers was

easier (Interview 4, December 2013). He showed me the cardboard box outside of the office system in place for him to easily collect and return term papers and reflections. For his doctoral research, it was "more comfortable to read on a piece of paper than to read online" (Interview 3, November 2013).

Luke seemed to look for balance between short-term EE and long-term PE. In discussing the materials he had prepared for an upcoming writing lesson, he noted "Marker and one piece of paper. That's my kind of lesson." He liked that such a system was, "totally controllable, I don't have to rely on anything" (Interview 3, November 2013). He further noted that it was easy to engage trainees this way, as he could easily engage trainees in evaluating content (a cover letter they had seen weeks before) before having them work on their own. "I mean you're hitting other levels, and you have a piece of paper and I have a marker. I mean it can be done, it's not that complicated," he said in reference to the depth of engagement and utility brought about through analogue means (Interview 3, November 2013). The same was true for Luke's note-taking and feedback for trainee presentations. I observed that he wrote in pencil directly on feedback forms. Luke said it was faster to do so than to use a computer as he was not a strong typist.

Overcoming a learning curve when integrating new technologies was an issue brought up by Luke. He mentioned several instances where he knew about technologies that could be helping him to achieve pedagogical or research goals, but that he anticipated a rise in EE. He did not know how to set up the Skype cultural exchange classes he was interested in, for example.

Time constraints related to short-term effort expectancy for Luke. For example, tablets were widely available at relatively low prices in South Korea in 2013. But in discussing the readings he was doing for his doctoral research, Luke mentioned that he continued to use printed papers rather than a digital e-book system because at the time he was "just trying to get through it" (Interview 3, November 2013). He said that when he got into heavier research in subsequent years he may "just treat [himself] to buying, like, a tablet and playing with it a little more and figuring it out"

but that “as of right now, [he was] just trying to survive the next month and a half” (Interview 3, November 2013) of coursework and teaching.

Time constraints as a mediating factor on EE were also brought up in Luke’s mention of the effect from relatively brief holiday periods on learning to use new technologies for the program. In discussing the difficulty about making a certain change he said that even though faculty discussed something a few semesters prior, it was “tough” to change the course as “the day after graduation… everybody takes off because we have such a short vacation” (Interview 2, October 2013). He said he was grateful that Ray was strict about the TEs not giving up any of their vacation time for planning together, but that it meant that changes would either happen in a rush mid-semester or would not get incorporated at all.

However, it was also clear that Luke would learn to use a required technology when he perceived that it would expend more effort in getting someone else to do it. When it came to transferring the micro-teaching videos to Google+, for example, Luke simply uploaded them himself directly after classes rather than getting an office helper. He said,

> you come to the office, start uploaded the videos as you're checking them, and then you know they're done. You don't have to rely on anybody else. So, I'd rather just do it. (Interview 2, October 2013).

Through a perceived lower EE from doing his own uploads, Luke had learned some troubleshooting techniques; I witnessed him solve a technical problem with the videos uploads after an observed lesson. In doing so, he had added a new technology use to his repertoire.

7.4.3 Social Influence in Luke’s Integration of 21st-century Technologies

Of all of the factors I found to influence Luke’s decisions to integrate 21st-century digital technologies into his practice as a TE, SI was the most prominent. When looking at the questionnaire item about keeping up with important new

technologies, for example, Luke said that he felt that there was “so much that just the people around me, they will get filtered through them, then whatever’s good I will get kind of second hand” (Interview 4, December 2013). He included in this list of influencers co-workers, former colleagues, and people in the same field (Interview 4, December 2013). In our second interview, I asked Luke whether he had been looking around for any learning management systems on his own and he immediately responded “No” (Interview 2, October 2013). He said that Ray and Jeff were his prime influencers, and that while at times he thought it was “too much,” he acknowledged the benefits of their seeking out technology, saying there were a “couple of cool things that they’ve, they’ve gotten [him] in the habit of using” (Interview 1, August 2013). He credited Jeff, his co-teacher and coordinator for the SLA classes as someone “constantly coming up with new ideas. More so than me, admittedly. And so, he's always like ‘I want to try this. Why don't we try this?’” (Interview 2, October 2013). Luke also collaborated with Jeff on a presentation that had been Jeff’s idea. Jeff had even influenced him in pursuing a doctorate at the same university.

Because Jeff was a section coordinator and Ray was the program coordinator, the voluntariness of Luke’s decisions to integrate technologies into his practice seemed relatively low. Luke had voluntarily adopted into his INSET practice Socrative, introduced by Jeff, but had not brought this to his PRESET classes. After learning how to use Blogger through other faculty members, Luke had voluntarily applied it with his general education students. However, his key classroom uses of 21st-century technologies for pedagogical purposes within the PRESET program all revolved around Google services that he had in fact been compelled to use by others: Google Circles for the Academic Reading Circles project, as instituted by Jeff, and Google+, implemented by Ray.

Luke said that he thought Google+ had been a positive development for him and for the program, proclaiming, “Google+ is cool. I'm glad that we use it” (Interview 2, October 2013). However, he also mentioned feeling constraints in learning technologies, as was the case for the BLP that was being instituted in the CU-TESOL

Program (see Appendix J). Luke said he felt he had “four bosses” and that decisions did “trickle down” (Interview 1, August 2013).

Luke felt that major changes to the program were “impossible” and was not certain where pre-existing traditions and regulations had originated (Interview 1, August 2013). While he and his colleagues were “happy to chip away” (Interview 1, August 2013) at outdated policies, speaking up in meetings was sometimes difficult. It was clear that Luke perceived his workplace as having some authoritative elements. Given that he said he had not been pursuing any sort of LMS before Google+ had been introduced through a top-down approach, it is conceivable that without Luke’s perception of a strong SI from his superiors to incorporate 21st-century digital technologies such as the Google+ into his practice, he may not have been using an online LMS in 2013.

7.4.4 Facilitating Conditions in Luke’s Integration of 21st-century Technologies

Luke had learned to upload videos onto Google+ himself because he felt that it was easier to do so rather than rely on a staff member. He told me several times in interviews that it was not clear to him who the tech assistant was or if there even was one (Interview 2, October 2013; Interview 4, December 2013). He did not feel the CU-TESOL Program offered the facilitating conditions for troubleshooting. Nor was it clear to Luke to whom he should go for help, noting that it was never explained to the teaching faculty who did precisely what job among the office staff. They changed “pretty often,” and “no one ever introduces us” (Interview 2, October 2013), Luke argued. Luke claimed that outside of retrieving whiteboard markers, he did not seek support help and did not think there was even an IT specialist on staff (Interview 2, October 2013).

Luke also indicated he felt a lack of support in terms of hardware. He expressed frustration at the example of his broken printer, which the university had told them could not be replaced. Although staff had offered him use of the downstairs printer, that room was closed on Sundays and no one had given Luke the password. He sighed, saying it was “just one more thing” to consider: “Okay, it's Monday

afternoon, I have to go in and print everything for the week, you know, and plan ahead" (Interview 2, October 2013).

Luke showed a willingness to go along when other people introduced a technology, but it was also evident that he felt he needed to rely on himself to work out IT-related issues. This feeling seemed to have led him to find some of his own troubleshooting methods, as in the case of the video uploads. However, a lack of clear support staff also hindered IT uptake. For example, he had never learned to use the special LCD screen in his own classroom, and inadequate administrative support may have been a contributing factor.

7.5 Factors Influencing Gina's Intentions to Integrate 21st-century Technologies into Her Practice

7.5.1 Performance Expectancy in Gina's Integration of 21st-century Technologies

The factors related to Gina's uses of 21st-century digital technologies in her practice revolved around her view of her roles as a TE and a faculty member in CU's PRESET programs. SI seemed to have particularly strong impact. While she showed interest in and behavioural intention to use other technologies, some of these had not materialised as behavioural use.

Although Gina had not personally selected the platforms for many of the 21st-century technologies used in CU's TESOL program, she did mention PE factors in discussions of her satisfaction with such programs. Crucial to her expectations of technologies was her opinion of what kind of learning was needed. Her thoughts on this were mixed. She contended that self-directed learning was "the best kind of learning" as this was how learners stored in long-term memory (Interview 4, December 2013). However, she also said that she thought that cooperative and collaborative learning were "absolutely important" (Interview 4, December 2013). At the same time, Gina felt that the timely completion of the content was crucial in the program, especially with "her baby", CCC, (email, August 2013), telling me "there's just so much content" (Interview 2, September 2013).

In fact, I noted that while there were several collaborative learning opportunities in the program, there were few opportunities for self-directed learning, as trainees rarely had personal choice in their assignments. The primacy of content delivery and TE-led feedback mattered greatly to PE. Gina described her role as that of a "facilitator" (Interview 2, Dec 2013), but in the custom of the program, called the student teachers "students", noting that in the PRESET program,

> we always refer to them as students. I don't know. I think of them as my students still, 'cos [K: Mmm hmm?] I have to correct *[laughs]* their, uh, tests, but I guess I think of them as student-teachers *[laughs].* I don't know. (Interview 2, September 2013).

Echoing the thoughts of Korthagen et al. (2007) Gina said it was important to bring to the trainees' attention the pedagogical implications of what they were doing in class. For example, in describing a story-based lesson, she mentioned she was "just kind of ad-libbing in between as well to try to make them aware of what I was doing as a teacher to, um, why I was doing as I was doing" (Interview 3, November 2013). I asked her if she thought making decisions explicit was important and she replied:

> Absolutely. Absolutely. Because even though it's very clear to me, um, I-I tend to forget that they may not be noticing that. They may be seeing it as if they were just students, um, and not teachers. So I think the more I can remember to do that, the more it helps them be aware of it. (Interview 3, November 2013).

Given Gina's stated belief in independent learning, collaborative learning, and awareness raising, it seemed likely that these factors would arise in an analysis of her influences to incorporate technologies into her practice.

For Gina it was important to maintain privacy and a professional boundary between herself and her trainees. In this way, the asynchronous time-lapsed nature of

Google+ was a boon for her. She preferred emails or for students to ask "their questions publicly in their community" (Interview 2, September 2013). For Gina, an online LMS such as Google+ fulfilled a useful mass communication function:

> Actually quite often if I get an email with, or a few with the same kind of questions, I just go to Google+ and I say, this is a question that was asked by many of you, and I'm sure will benefit all of you, here's the answer publicly. Um, I, 'cos obviously that's ideal. Saves me time, helps more students. (Interview 2, September 2013).

Gina's preference for asynchronous and time-controllable communication influenced how she adopted the available technologies. She did not want a smartphone because she did not want to be contacted all the time (Interview 3, November 2013), and avoided Google Hangouts because she did not want trainees to become accustomed to immediate replies from her.

As part of the team that had initially adopted the LMS, Gina had had some influence in PE-related adoption choices. She said that she and the others had "kind of [thrown] around a lot of different ideas for forums [K: Umm, hmmm] and I think Ray finally said 'Let's just try Google+.' We were all a little bit scared because of how horrible it used to be," she said, but added that ultimately it worked "great" (Interview 1, August 2013). She said that the decision to start using an LMS in the first place "started because we wanted a way to reflect, for students to reflect" (Interview 2, September 2013). The previously available university-provided LMS allowed document posting only. With no discussion board for trainees to engage in interactions, it was quickly abandoned.

By the time we had had our second interview, Gina already knew that she would be leaving the country, and that this may have affected her decision of whether or not to get a smartphone in South Korea. Although she said she had not "really found the need" (Interview 4, December 2013) for a phone, she was hoping to get one later, motivated by the PE of apps for gamification purposes.

PE also underpinned Gina's preference for SugarSync. She considered the tool useful for avoiding inadvertent overlap in courses while enabling more faculty connection. For Gina, this linked to stronger cross-faculty sharing, noting that "there was not a lot of communication in the past" (Interview 1, August 2013). SugarSync allowed faculty to "take and tweak" content such as PowerPoint slides but also ensured that all instructors for the same course "would at least hit the same concepts and things" (Interview 1, August 2013).

7.5.2 Effort Expectancy in Gina's Integration of 21st-century Technologies

EE factored in Gina's choices between technological versus analogue solutions to match her teaching style. For example, during lessons, rather than typing on the console, she would keep the screen up and write by hand on a whiteboard over projected PowerPoint slides as she elicited answers, or "could just blank it really quick and can draw a picture" (Interview 1, August 2013). Gina said she felt it was quicker and easier to do things this way on the spot.

Moreover, Gina's materials and lesson plans were handwritten and kept in colour-coded paper folders rather than online in SugarSync or Dropbox. She said it was easier to do her lesson plans by hand "because it helps with the visuals and it helps me know what I'm, how I'm going to use my whiteboard and stuff" (Interview 1, August 2013). This was perhaps in part because many of the materials contained original drawings that had been created by her artist husband; online storage would have entailed the effort of scanning and uploading. With binders, Gina could "flip back" as they were "super visual" (Interview 1, August 2013).

For Gina, low EE was worthwhile only if PE was considered. With Google+ and the video reflection project in particular, Gina insisted the concerted effort was a benefit, affirming that they helped saved time in the end considering their pedagogical PE. I asked her whether she would go back to "the old ways before you had all the videos and the Google+ and the uploading?" and she replied,

> No way! Um, it's much better. And the, I, the, it also saves us time on our feedback to students and I feel less, uh, I feel like I have less of a need to write so many comments and feedback. Because now when [trainees] examine their own videos, and they reflect and they peer-reflect, they've already come to all those realizations, and I may have said this before, but they don't even read my comments, barely. [K: Um hmm] Whereas before they relied solely on those. And if you asked them, what, what are you working on, they would repeat what I had written. Uh, and so it's *so* much better. And it really isn't any more work. (Interview 2, September 2013)

7.5.3 Social Influence in Gina's Integration of 21st-century Technologies

While both PE and EE were key to Gina's ICT-adoption, SI seemed an even stronger motivator, as had been the case with Luke. When she talked about her robot or coding, Gina used "I" phrases, but in discussing the General Program she primarily employed "we" phrases. On the subject of stronger integration of a TPACK focus for trainees, she said "…we're slowly building, we'll get there. (Interview 3, November 2013). When I asked Gina if she thought technological "getting there" was something required, she responded "Absolutely. Are you kidding, it is inevitable. I mean, it's part of our, uh, it's part of our students' lives" (Interview 3, November 2013). Here, Gina had verbalised part of the SI underlying her technology adoption decisions: societal expectation.

Gina mentioned that almost all the program's "tech realm" had been established by others (Interview 4, December 2013). Having "definitely" not started out with many technical skills, and stating she "never, never played with" technologies in her youth (Interview 4), she had learned a lot about technology from her interactions with colleagues within the program. In fact, her engineer father, who knew Gina as a "Luddite" growing up, was shocked when he observed her helping a colleague use a software program (Interview 4, December 2013). Gina said prior to CU she knew only wordprocessing, and that "sharing, working on things together with colleagues" (Interview 2, September 2013) online were all new learning experiences that had propelled her integration of technologies.

Gina mentioned Ray as a particularly strong influencer. After possible platforms for the video reflections were discussed, Ray suggested and pushed through Google+, a platform that others worried was not fit for task (Interview 1, August 2013). Gina mentioned that for her, Ray had been a mentor in other ways: "…it's not just technology. [It's] everything. It's like he mentors me. So he likes to give me advice on many things…" and " I've learned a lot from him. Um, but yeah, I appreciate a lot of it, but it's not just tech. He likes to share what he thinks is important" (Interview 3, November 2013). Nevertheless, Gina felt that ultimately it was her own drive that led to technology adoption in her professional life. For example, she blogged with students on her own initiative before joining CU and had taught a YL colleague how to set up his entire website based on her model Blogger website.

Moreover, while Gina attributed the moving forward of the LMS to a team effort, she recalled some key moments when, propelled by her vision of what constituted a good balance between both PE and EE, she had used her sway to influence the course of action in developing the LMS by getting Ray and others in the group to specify precisely what they were hoping to achieve. At one point in selecting an LMS, she said Ray determined Prezi was fit for the task. Gina told me,

> I remember us all being like, 'I dunno.' That was actually me *[laughs],* I spent a good few hours, like, writing this big long email and with bullet points *[laughs]*… I made this whole *[laughs]* long email uh, with a list of our objectives for whatever platform it was, I was like, so here's what we want, we want them to be able to share videos, reflect on them, we want a place where they can build community, uh, where we can post homework assignments, where we can do things, so I made a list of all these objectives, and I said, 'Would you all agree that these are things we want?' And then, and then, I followed it up with, 'And now, and now if you go through this list, Prezi does, you know, one out of these seven things.' Um, so that, it was a suggestion. (Interview 2, September 2013)

7.5.4 Facilitating Conditions in Gina's Integration of 21st-century Technologies

While some conditions facilitated Gina's integration of 21st-century technologies into her pedagogical practice, other factors were barriers. The availability of computers in the classrooms, fast wifi access, and projectors had facilitated some of her interactions. However, her lack of a smartphone in a setting where virtually every trainee had one had acted as a barrier. She mentioned, for example, being interested in Socrative but ultimately finding it difficult to incorporate because she was not "a smartphone person" (Interview 3, November 2013).

In terms of working with the video cameras and uploading micro-teaching videos, Gina's view of the role of the Korean office staff both echoed and diverged from Luke's perspective. Gina handed the video card over to the Korean administrative staff, saying that the TEs were "trying to get in the habit" of having staff handle the "time-consuming process" of uploads (Interview 2, September 2013). However, she noted "glitches" with the process and "kind of a lack of communication where [trainees] needed to reflect by the next day's practicum and [the videos] weren't up" (Interview 2, September 2013). Gina, then, shared Luke's perspective that communication with the office staff was not always an FC; however, unlike in Luke's case, Gina wished to delegate the extra task.

This same desire to redesign systems to enhance FC for LMS adoption was shown in Gina's attempt to streamline information systems through communications with the Korean office staff. She told me that the TEs had been "trying to get the staff" to require a Gmail account on trainees' applications to lessen the burden on faculty to get trainees into the LMS during the first week of courses, but that despite two semesters of complaints, no changes had been made (Interview 2, September 2013). During the Fall 2013 semester, realizing "what a pain it was" (Interview 2) to follow-up on Gmail invitations to trainees, she approached the support staff directly form in hand (Interview 2, September 2013). She aimed to do the same for the General Program in order to "save us all so much time" and facilitate processes" (Interview 2, September 2013).

Overall, it was apparent that program FC both influenced and were influenced by Gina's decisions in how she integrated 21st-century digital technologies into her practice.

7.5.5 Habit in Gina's Integration of 21st-century Technologies

Habit may have seen Gina using a marker over a PowerPoint projection (rather than using the computer for the same purpose); however, with Gina's proclivity to try out new technologies, her technology integration seemed to be based more on FC, (including her lack of a smartphone), on EE, and on PU.

7.6 Factors Influencing Ben's Intentions to Integrate 21st-century Technologies into His Practice

7.6.1 Performance Expectancy in Ben's Integration of 21st-century Technologies

For Ben, an active proponent of pedagogical efficacies and uses of 21st-century technologies in teacher educating, numerous factors influenced his decisions in using 21st-century tech in his practice, including his status as a new recruit at CU. I explore factors related to this in this next section.

Ben's 'horses for courses' mantra indicated his espoused belief that performance ranked high when selecting technologies for use. His so-called platform agnoticism led to a search for "just the right tool for the job" (Interview 2, October 2013). Ben's high TK and possession of numerous devices gave him choices in the kinds of technologies he used, and aligned with his stated goals. Both Ben and Gina kept detailed lesson plans for YL lessons. However, while Gina's plans were paper-based, Ben's were on his iPad for use during lessons and because it was effective for lesson redesign while commuting.

Ben embraced simplicity in PE. Out of the myriad payment-free LMS options of which he was aware, Ben selected ClassJump to use with his trainees "just because it's nice and simple and there's no, there's no bells and whistles" and because "everything is there under one umbrella" (Interview 1, August 2013). Unlike

Google+, ClassJump contained hosting capability. As the semester went along and Ben discovered flaws to the updates in ClassJump, he declared that due to PE-related reasons he would abandon the platform for the following semester. Ben also considered this seamlessness for a YL-program-wide LMS, noting that the special requirements of teacher training required different capabilities than a regular university program, including the capacity for trainees to submit videos (Ben-Post-Ob-Interview 1-2013).

For purposes of modeling, Ben found both analogue and digital solutions helpful, as shown in the digital storybooks he used in the CU kindergarten: “the kids get a real buzz out of turning the page” (Interview 1, August 2013).

Ben would disregard what seemed to be extra effort in order to pursue what he deemed better performance. And interestingly, while mezzo-level factors created an apparent barrier to his using TeacherKit (an app that allowed him, among other features, to take attendance), he said, “We have to use pen and paper for admin purposes so, at the end of each day I'll look at this [points to attendance register folder] and transfer it” (Interview 1, August 2013)—his view of the PE factor overcame the barrier of extra EE. At the same time, later in the semester, when he found that he still had difficulties with trainees’ names, Ben recognized the low performance of the app, stating, “we're not using that next semester” (Interview 2, October 2013).

When it came to the effort versus PE dilemma of making his own PowerPoint digital storybooks, Ben expressed an underlying pedagogical motivation, saying it was worth making his own as he could tailor them to the lessons (Interview 1, August 2013). Here Ben pointed out language-focused pedagogical goals such as activating background knowledge before reading a story. His discussions showed a tendency to prioritise EL teaching or training goals when pursuing areas of professional development. For instance, though he already used Google Forms and trainees’ smartphones to create surveys to activate schemata among his trainees, he still

aimed to learn at the Google Summit a method of tabulating answers quickly in class using Google Forms.

Ben strongly agreed that he could choose technologies that enhanced the teaching approaches for a lesson, and he showed a willingness to try out new technologies if he thought they fulfilled a pedagogical goal. He used his prior knowledge as a TE to figure out what was working, saying,

> Perhaps there is an element of trial and error. Um, hopefully with strengths and things like classroom management and more traditional approaches you can either recover or just cover up some of those failures, you know. (Interview 4, December 2013)

However, while Ben mentioned uses for technologies consistent with his views on ELT, he did less so when it came to views on modelling how to use technologies. He revealed ambivalence regarding his role as a TE. He mentioned the importance of modelling, but also said he struggled with modelling versus lecturing, stating, "… I think in teacher training, yes you have to model. But sometimes, you know, you just have to also lecture" (Interview 1, August 2013).

It appeared that Ben employed more implicit than explicit TPACK-related modelling. There were some exceptions: he overtly taught trainees how to find royalty-free images in a Google search and he gave a workshop on digital photography in the classroom. He also taught trainees how to find line drawings in Google image search for worksheet production "because it's easier, it prints clearer" (Interview 4, December 2013). Ben acknowledged that modelling was tacit: "With me, it's, it's implicit to pretty much everything I do now" (Interview 2, October 2013). However, with the specific lessons he had used in explicit teaching on educational technology use, he said he was "fairly happy" with measures of what his trainees were able to apply from their learning about technologies and that they were "able to demonstrate that they can use it" (Interview 4, December 2013). Moreover,

towards the end of the semester, Ben said he had been thinking of some more overt TPACK building:

> One of the things I want to do next semester is put aside Saturday morning and have my students come in and give them some sort of workshop on, 'Look, this is what we're going to use, it's Google+ or it's Google Docs,' or it's whatever I decide it's going to be. 'Yes, you have to use it, but this is how you use it.' (Interview 4, December 2013)

When Ben demonstrated new teaching techniques, he even emphasized low-tech options. In a visit to Ben's office, I saw a stack of laminated A4-sized paper-- a kind of makeshift mini-whiteboard for each trainee. He had seen the idea in classrooms he had visited in the past and thought making them "seemed so common-sensically easy. It's only ten minutes of work, a few odd looks from the office [staff]" (Interview 3, November 2013). He felt that this was a useful technique for his trainees, as "all of a sudden they have something that was practical they can use, and they hadn't thought about before" (Interview 3, November 2013). Interestingly, a similar kind of task could be achieved through smartphones, but Ben preferred the analogue method.

Ben said he was critical in choosing whether or not to use a technology based on whether it had clear objective and whether or not it would prove to be reliable in a classroom. "I'd rather not look an idiot," he told me, in reference to ways technologies could fail when a TE was in front of a group of trainees (Interview 4, December 2013). He also pointed out that any technology,

> has to serve a purpose, and if doesn't serve a purpose, um, then no. I mean, case in point: interactive whiteboard. You know, is it something that I know is reliable? Because my hand is not going to stop working all of a sudden. Um, you know, am I able to get a new whiteboard marker if this one dies on me? What's going to happen if this, this big giant touchscreen dies, or the computer locks up? (Interview 4, December 2013)

I probed Ben's ideas about modelling as we discussed how he taught trainees to incorporate video into their teaching. He said he thought,

> giving them an example is always a good, or a model, is always a good thing. Um, but I would prioritize them trying it out themselves over providing a model. (Interview 3, November 2013).

Ben said that this was because he felt that when he provided examples, he felt trainees tended to just copy them. He admitted that this could have been caused by his own instructions, but he also thought "there is also something just about Korean students and them wanting the answer so that they may emulate it rather than do it themselves" (Interview 3, November 2013).

Ben taught a lesson on learner difference theories. He said he thought that technologies such as touchscreens could address learner difference but noted that an educator had choices in how learner difference was addressed. To Ben, a technological solution was not a requisite for this task. He said,

> How do you approach learner difference in the classroom, you know, regardless of technology? It is that you try and address all of those differences as best as you can. So you might give instructions verbally, you might write those on the board, and you might, as I've done a couple of times, actually provide a pictorial for every one of your instructions. So to address all three sort of main learning styles. Um, do I use technology in the classroom? If for a single day, no. (Interview 4, December 2013)

Part of Ben's planning with technologies for the Fall 2013 semester related to his status as a new faculty member. Beginning the semester with technologies with which he was familiar, by end of the semester he had decided he needed a better system that did not involve "cherry picking" (Interview 4, December 2013). He mentioned that while he had had to make his own solutions, now he knew how to

adapt for his new, particular role and the students he would have (Interview 4, December 2013). He identified the dissemination of information and getting trainees to submit information as areas that needed improvement and said he was considering spending a little money to buy a Google Pages site to do this, in lieu of ClassJump. Teaching one semester had helped Ben to better identify technological PE needs as he started the planning process for the subsequent semester.

7.6.2 Effort Expectancy in Ben's Integration of 21st-century Technologies

Although Ben seemed to prioritise PE when choosing among different types of 21st-century digital technologies, EE was a driving factor in analogue versus digital tool selection, particularly during class hours. An interesting example of this was Ben's choice not to use his iPad or a computer to write lessons on the board. When Ben spoke of encouraging trainees to use their smartphone to photograph his board work during lessons, I asked him why he had not simply worked on a computer/projector to begin with. He replied that because there was a brainstorming element in that day's class "where we were going around… it was just easier to write with a marker rather than type it out" (Interview 1, August 2013). He would then photograph the whiteboard himself "as a form of redundancy"Interview 1, August 2013). When I exclaimed that it must take him a long time to go to the process of putting photos and notes up on the website, Ben said, he just did "it as habit" with the iPad always in his hand (Interview 1, August 2013).

In other words, both the trainees and Ben himself would photograph the board work, and Ben would later put these on the class website. Ben could simply write on the iPad and upload information to the class website. However, to do so would have required connecting the iPad to the projecting system and having a guarantee that it was working within each of the different classrooms. This effort, coupled with pressure to function fluently when in front of a class seemed to have been influential factors in Ben's decision-making process. Ben admitted at the end of the semester that he had not in fact uploaded everything onto ClassJump but still found it useful for trainees to be able to take photos of the whiteboard to have for

themselves. Interestingly, in our final discussion, Ben talked about how workflow apps like Evernote had optical character recognition (OCR) and could potentially be utilized by trainees to convert their whiteboard photos into searchable electronic files. He mused,

> Maybe what that means is that I need to think more seriously about what I am writing on the board. I need to put things like titles. I need to put things like 'date', so that they become searchable. (Interview 4, December 2013).

To me, there seemed to be an extra step in the process between a TE writing on a board and a trainee taking pictures, going home, and then using technology to do OCR searches through the photos. Ben replied,

> I know what you're saying, but I think that's a result of just how people have developed the use the technology. If we all stopped and thought about it seriously for a minute, yeah, we-we would do it the easier way, but you know, I mean that's the mouse, that's how we ended up with Qwerty keyboard, not because it was the easiest way but because that was the way it sort of developed. I mean we could all have Dvorak keyboards just as easily, yeah. (Interview 4, December 2013).

Given Ben's extensive knowledge of technology uses and his devices such as tablets and laptops, it still struck me as peculiar that he registered no major disconnect between the ability simply to use his iPad or computer to make notes and send them to the trainees and his writing on a board with a whiteboard marker.

In other exchanges, Ben pointed out the uses of a simple piece of paper to foster learner autonomy and encourage reflection. One routine involved posting a large piece of paper, selecting a greeter and a circle leader, and asking a question like, "What was one important thing you learned doing the observation project?" (Interview 2, October 2013). Ben said he would leave the room for twenty minutes and return to a paper full of ideas from the trainees and a completed attendance

register. He said he would not disable the security functions of his iPad by entrusting it to trainees for activities such as these (Interview 1, August 2013).

He also talked about the learner autonomy promoted by encouraging smartphone use in class. He gave the example of when trainees encountered the word *plurubus* in a task comparing a US dollar bill to the Korean won, and looked up the definition by themselves. It reminded Ben of Scrivener's (2005) work on clarification in ELT: "Clarification-guided discovery, versus clarification-explanation, versus clarification-self-directed. I'm all for the self-directed" (Interview 3, November 2013).

Ben readily acknowledged that pen and paper could sometimes simplify the completion of pedagogical goals. When I inquired about the mass of sticky paper notes on his computer, Ben acknowledged that at times it was easier to make paper notes than using the iPad (Interview 1, August 2013).

In collecting assignments, however, Ben said that there was "no paper whatsoever" (Interview 2, October 2013). Among other advantages, receiving paperless assignments allowed Ben the freedom to grade and provide feedback wherever he wanted to be, and he could shift fluently between CU-related tasks and other aspects of his life on the computer, doing one at a time until he got bored (Interview 2, October 2013). More importantly, however, he felt that the primary purpose of technology-based management in general was to make his '"job as a teacher easier" (Interview 2, October 2013). He added, "If I had to physically deal with a hundred odd bits of paper and write comments on it…I think I would lose my mind" (Interview 2, October 2013). He pointed out that his handwriting was "unreadable" and that he was "faster on a device…markedly faster" (Interview 2, October 2013).

7.6.3 Social Influence in Ben's Integration of 21st-century Technologies

Within the confines of the YL-TESOL program, Ben was influenced by other TEs in some of his choices of analogue or digital-based practices for planning. On a larger scale he was influenced to a certain extent by what he perceived to be societal

needs pointing to technology. However, one particularly strong point of SI was Ben's perception that Dr. Cho may have hired him in part for his technology knowledge in contributing to the new BLPs (Interview 1, August 2013). When I asked him "Are you happy to be the tech guy?" he simply laughed, "Horses for courses" (Interview 1).

At the same time, Ben said he felt that in many situations, the integration of technologies into teaching was often a top-down affair:

> I fear that a lot of the time, especially at the moment, it's just that, it's a shiny veneer that people are sort of sticking over the top of things to look good. 'You know, we're-we're in 2013, here's some Internet stuff.' [K: mmhmm] You know, a lot of things are sort of coming down from the top, saying, 'Make the Internet relevant to your classroom.' 'Okay, how?' (Interview 3, November 2013).

Outside of the program, Ben said he was influenced by other educators, particularly by Google Educators. This change was particularly noticeable after his attendance at the Google Education Summit in October 2013, where the learning had prompted him to consider Google Pages rather than ClassJump in his planning for the subsequent semester. The big-name prolific educational bloggers in the ELT world were influences on the technologies he used. He said TEs in the YL program were not inclined towards technology use (Interview 4, December 2013), despite the coordinator Mark's completion of a master's thesis on evaluating LMS and publication of a book on technology and teaching.

7.6.4 Facilitating Conditions in Ben's Integration of 21st-century Technologies

Ben's status as a new employee in the program had influenced his pedagogical technology intentions and behaviours. He told me that one of his aims was not to "rock the boat too much" during his first months at CU (Interview 2, October 2013). For instance, while he felt there should be proper mock or even real lessons as part of a practicum in the program, he did not bring this up with his superiors, nor did he

look for a technological solution that would allow this, such as video-conferenced classes. In addition, while he had selected his own platform for an LMS and made his own decisions regarding tablet versus computer versus paper-pencil choices for teaching, he used systems already in place to communicate with other teachers within the program. For example, Mark, the YL-TESOL coordinator employed emails throughout the summer preceding the semester to share materials with Ben, whereas a co-TE teaching another section of the same course used SugarSync with Ben.

The sharing systems among TEs in the YL program seemed influential in Ben's planning process as well. Having inherited an office from a predecessor, Ben's shelves were brimming with paper-based resources. Ben said he had spent a great deal of time "sifting through this large mass of stuff" in search of materials (Interview 1, August 2013). Had these materials been readily available in a shared online folder, he may have approached this task differently.

Ben's decisions in choosing an LMS and determining whether or not to incorporate his learnings from the Google Summit were most certainly influenced by the fact that, unlike in General Program where Google+ was in use, there was no LMS already in place in the YL Program. I asked him when or whether he might incorporate his Google Summit learning. He replied that it would not happen in the Fall 2013 semester, as it required all the trainees to be registered on and familiar with Google. He said, the biggest barrier to this was student adoption: "Um, you know, walking a hundred students through signing up to ClassJump was bad enough" (Interview 2, October 2013).

Ben stated that in the YL program, each TE was using a different LMS, and that he might be the only one making trainees sign up and create accounts for ClassJump. Ideally, he said, there would be more support from other TEs and from the program as a whole, whereby the TEs could simply require trainees to have a Gmail address and Google Docs. He noted that this would require some workshops and walkthroughs before teaching began (Interview 2, October 2013).

On a broader scale, however, Ben asserted that despite having seen Ray's webinar on the uses of Google, he still felt that choosing to use Google products was particularly difficult in South Korea:

> Ben: Whereas anywhere else in the world you could say, 'Okay you need to open a Google account, most, most students in every other country on earth would be like 'Ah, okay.' Here, they're like, 'Google? What is this Google you speak of?'
>
> Ksan: Do you think so? Have you talked to the General guys about it?
>
> Ben: Uh, no. No, you know, 'cos I don't want to rock the boat. (Interview 2, October 2013)

Ben maintained that "the way the Internet is used in Korea is wholly different from everywhere else" (Interview 2, October 2013), and that "students don't know how to use Google" (Interview 2, October 2013). I asked him if he would use something based on Naver, Korea's most popular search engine, which also provided website hosting services. Ben replied, "Yeah, but then the barrier of entry switches to me" (Interview 2, October 2013). I asked him if teachers should adopt the dominant technology of the local culture. Ben replied

> Ben: Um, [*sighs*]. Have you got a couple of days where we could talk this out? Because seriously, I mean, you could argue that both ways prodigiously, for a long time. [K Mmm hmm?] Um, it's not so much, no. No. Because it should be what the majority of everyone is using. Not just in Korea. You know.
>
> Ksan: Why is that?
>
> Ben: Because that's the way the Internet works. (Interview 2, October 2013)

For Ben, EE from an instructor's viewpoint was crucial. When I asked why he thought CU-TESOL did not just use an in-house tech expert to create an LMS and

BLP, he said that then "the foreign instructors can't use it" (Post-Ob-Interview 1, 2013). He said even for the university-wide LMS, it was likely that the backend was not in English or that the LMS would only work with "Explorer 6 on Windows XP, on days, you know, ending in even numbers" (Post-Ob-Interview 1, 2103), sarcastically referring to South Korea's notorious IT security features which frequently required the use of browser Internet Explorer, incompatible with some Google features.

Ben included other demands for trainees that ran contrary to general practices in South Korea but that were common among non-Korean ELT professionals in the country. For example, he had demanded that trainees use word-processing systems other than *Hangeul hwp,* a proprietary Korean word-processing application: "I have expressly said no hwp" (Interview 2, October 2013). His reasoning for this included EE, as he could open the documents but did not "know all the keyboard shortcuts" (Interview 2, October 2013). He also echoed Ray's stated belief that Korean trainees would likely use Korean when using a local app. We talked about Kakao Talk, Korea's extremely popular messaging app. Ben said, "Using something, okay, for want of a better term, using a 'native' app, like Kakao, um, students are more inclined to use Korean [language]." (Interview 4, December 2013). He added he wanted them "in English mode" (Interview 4, December 2013), indicating Ben's stated belief that language learning was an important goal of the course, and that using Korean-produced apps could prevent that, although he admitted that he could not remember reading any particular evidence of this (Interview 4, December 2013). He added,

> When they go home, when they're on the bus, when they're doing things mobile, it's, for one, it's easier for them to just work in their native language, um, and two, that's the paradigm for that thing, whatever they're in it, so their native language, whereas if you use something that they're a little unfamiliar with, say Google for want of a better example, um, they're forced to use English. (Interview 4, December 2013).

Ben's position on the use of a foreign-produced software tool echoed Ray's webinar argument about "unfamiliar alphabets." On the other hand, Ben noted that his "barrier to entry" (Interview 4, December 2013) might have been an even bigger reservation, when it came to using an app like Kakao talk in the classroom.

Ben's own predilection for electronic devices also influenced his technological decisions. For example, his choice to use TeacherKit as a gradebook and a way to learn trainees' names was influenced by his possession of an iPad. He had, in turn, become a social influence on others as he introduced it to other TEs within the YL program.

Above all, to Ben the FC of South Korea's fast connectivity was key. Pointing to his aging work-provided computer, he said, "as long as it connects to the Internet, there is no real issue" (Interview 4, December 2013). To Ben, fast connectivity promoted autonomous TE development. I asked Ben how he had learned to apply a Google feature in which a spreadsheet could automatically total grades and convert them into letter grades. He wryly replied, "Um, there's a really cool website. It's called, um, what's it? Google.com, yeah. We don't need to *learn* anything anymore" (Interview 4, December 2013). Although Ben still wished for the FC of tablets for students and Google Glass for teachers (Interview 4, December 2013), South Korea's fast Internet availability still gave him options as a TE.

Nevertheless, some areas that could be FCs acted as a barrier to Ben's classroom technology adoption. Poor induction procedures were a problem. Ben echoed the sentiment expressed by Luke that it was not clear which support staff members were responsible for technical matters. On the first day of classes, Ben and "everyone involved" could not get the laptop-projector hook-up to work and Ben's workaround was, "problem solved: don't use it *[laughs]*" (Interview 4, December 2013). For the remainder of the semester he went without connecting his laptop or iPad to the projector. With more technical assistance, it can be conjectured that Ben may have chosen the low EE of his iPad over the analogue whiteboard. Ben affirmed that there had been no induction process related to where to go about

technical issues once he was hired. Ben also discovered at the end of the semester that he had access to journals through the university's IP address. It was evident that induction as a whole, including for technological issues, was lacking, and this negatively influenced Ben's technology adoption.

7.6.5 Hedonic Motivation in Ben's Integration of 21st-century Technologies

Of all of the participants in this study, Ben exhibited perhaps the most influence from HM in his decisions to integrate 21st-century digital technologies into his work. He said he liked technology "just in general, outside of teaching, I'm interested in, um, and so I guess it's a, a natural sort of overflow into, into teaching." (Interview 1, August 2013). Ben used the word 'fun' to describe aspects of learning about educational technologies such as creating Google Form macroscripts at the Google Summit (Interview 2, October 2013). In response to the questionnaire prompt, "I frequently play around with technology," Ben mused, "Can we substitute 'frequently' for 'far too much'?" (Interview 4, December 2013). He denied being obsessed, but agreed that technology was a "strong interest" (Interview 4, December 2013).

7.6.6 Habit in Ben's Integration of 21st-century Technologies

For Ben, technology integration was absorbed into other professional habits. At the start of the Fall 2013 semester, he took iPad-based notes while observing Mark's class, to "get into some good habits" (Interview 1, August 2013). Another habit was collecting and returning student work digitally. Ben claimed he could not recollect a time in his teaching career when he had done it by paper. Ben informed me he was "digitally native" (Interview 2, October 2013) in terms of the habits he had developed based on his years of teaching. Connected digital devices were habitual in Ben's life, like the cameras from his personal interest spilling over into his professional life. Habit wedded Ben to technologies; at one point, Ben forgot his smartphone at home and contemplated leaving the office to fetch it (Post-Ob1-Sep-2015).

7.6.7 Price Value in Ben's Integration of 21st-century Technologies

Price value was also important to Ben. He used his personal networks and Internet search skills to look for deals on electronic devices; nevertheless, he readily admitted that payment for gadgets took up a sizeable chunk of his disposable income. "Oh, if only I had fifteen hundred dollars," he wistfully exclaimed when recounting trying on Google Glass at the Google Summit (Interview 2, October 2013). At the same time, however, Ben was willing to go through the steps of for free techtools. In a telling exchange, I asked him about something I noticed on his computer screen:

> Ben: I was just reading the Verge, which is a tech blog. *[laughs]* Um, and I saw the words 'free download', and so clicked through, and apparently there's a nice little alarm clock that I'll be trying out tomorrow morning.
>
> Ksan: Why that and not just your regular alarm clock?
>
> Ben: 'Cos it's free.
>
> Ksan: But your phone has an alarm clock. *[laughs]*
>
> Ben: But it's free! *[laughs]* (Interview 1, August 2013)

Price value was Ben's first criterion for an LMS at CU. In discussing the merits of Google+, he said, "It's free. That would be my first thing" (Interview 2, October 2013). He said he hated thinking how much the university paid for technology that would get "used once and then sort of fall out of favour" (Interview 2, October 2013). If an LMS could not be free, it should at least be economical, he maintained, noting that if CU-TESOL were to "seriously deploy" its student management through Google,

> I would be inclined to say that we should actually purchase a Google Apps for Education domain, you know, which is still cheaper than say Blackboard or WebEx or any of the other solutions that I've heard floating around (Interview 2, October 2013)

Ben expressed a desire to keep personal expenses for a learning platform to zero, even if it would mean switching platforms partway through a semester. In October 2013, he said ClassJump, run by donation by a US-based teacher and which he had used three times before, was glitch-prone. I asked him if he thought the site might become freemium soon, and he replied that if it did, “then we're going to Google+” (Interview 2, October 2013).

7.7 Chapter 7 Conclusion: Research Question #3

The reality of teaching is complex, and inferences about direct causes leading to technology adoption would be inappropriate here. Neither do I aim to determine percentages regarding impact from specific UTAUT factors on participants’ intentions and behaviours. Rather, I have used UTAUT and UTAUT 2 constructs to illuminate the various factors working in tandem and which I found to relate to the TEs’ decision-making in how and why they adopted several of the technologies they did over the fall semester of 2013. In doing so, I have depicted the interplay of cognitions, barriers, affordances, and practices that guided decision-making practices among these TEs.

As employees working under decision makers and as the masters of their own classrooms and PLNs, these TEs were simultaneously voluntary consumers who were professionals learning across horizontal spaces (Williams, 2014) and involuntary users of 21st-century technologies. In Chapter 8, I explore this intermingling of roles as I analyse the findings shown in Chapters 5, 6, and 7. In doing so, I also examine a serendipitous development occurring over the research period: the participants’ involvement in planning a synchronous blended learning program (BLP) for the following semester.

CHAPTER 8: DISCUSSION: UNDERSTANDINGS AND IMPLICATIONS

8.1 Introduction

This thesis explores TESOL-TEs' cognitions and practices in relation to the pedagogical purposes and efficacies of 21st-century digital technologies. The questions I aimed to research were:

1. How do TESOL-TEs integrate 21st-century technologies into their practice?
2. What are TESOL-TEs' cognitions in relation to the pedagogical purposes and efficacies of 21st-century technologies?
3. What factors influence TESOL-TEs' decisions to integrate 21st-century technologies into their practice?

Chapter 5 addressed Research Question 1, delineating the numerous ICT pedagogical uses employed by the five focal CU TESOL-TE study participants to facilitate several types of interaction, based on a framework by Lou et al. (2006). It was found that these interaction types included TE-TE; TE-learner; TE-content; learner-learner; learner-content; and TE-self interactions. Chapter 6 investigated Research Question 2 and revealed that all five focal participants in this study displayed high TPACK (Koehler & Mishra, 2009; Mishra & Koehler, 2006) and espoused generally positive beliefs as to the instructional purposes and efficacies of 21st-century technologies. Chapter 7 looked at Research Question 3. It was found that factors featured in the UTAUT models (Venkatesh et al., 2003, 2012)--PE, EE, SI, FC, HM, price value, and habit—guided the focal TESOL-TEs' decisions and behavioural use to varying degrees, but that the mediating factor of age did not relate to teacher educators' decisions in the manner predicted by the UTAUT.

In this final chapter I analyse key understandings identified from a cross-analysis of the five focal participant cases. In doing so, I highlight connections and

discrepancies among TEs' observed behaviours and cognitions in light of theories on TE roles and concepts about technology integration. I also compare and contrast participants' own cognitions in relation to their praxis and situate their beliefs, knowledge, and practices within their role in the program. To illustrate the influence of varying factors on TEs' cognitions, practices, and decision-making processes, I explore the planning of a synchronous BLP that was to commence in the Spring 2014 semester. I further identify the limitations and pedagogical implications of this study and propose ideas for future research.

In the course of my interviews with the participants, I learned that CU was developing a BLP version of the General Program. This development involved the active participation of all the participants in the present study. Although the BL format was not to be applied to the YL program in which Ben taught, he was involved in the planning stages due to his educational technology expertise. In Appendix J, I provide a timeline of BLP planning, tracking the moments when I learned of developments and highlight the participants' reactions. In section 8.2, I use the BLP to illuminate the forces and relationships related to participants' cognitions and practices regarding 21st-century digital technologies. In my analysis of the findings I have discovered a number of salient connections and discrepancies among cognitions and practice. I have linked these to the wider literature, resulting in six key understandings.

8.2 Six Key Understandings from This Study

8.2.1 Understanding #1: Five Forces Acted in Tension Against Voluntariness

Educators may have varying degrees of autonomy in their roles (Abdenia, 2012; Nistor, Göğüş, & Lerche, 2013; Rappel, 2015). In the CU-TESOL Programs, I observed numerous instances of force in dilemma with voluntariness, and found that both of these elements at varying times added to and detracted from the pedagogical integration of 21st-century digital technologies (see Figure 14).

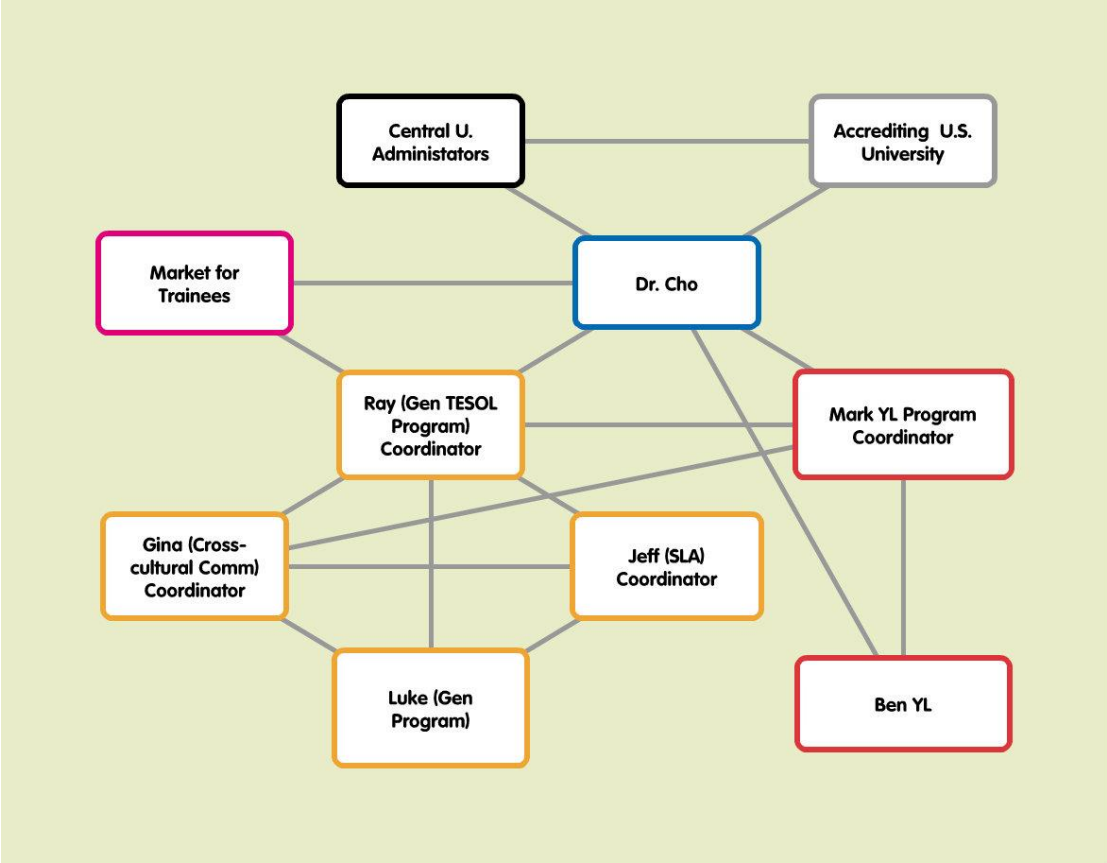

Figure 14. Forces influencing technology adoption at CU-TESOL

Force One: Perceived Market Pressure

Dominant market orientations can influence pedagogic identities (Exley, 2004) and online course design (Muirhead & Betz, 2005). An emphasis within higher education discourses on 'innovation talk' and the inherent entrepreneurialism brings market forces into teaching and learning (Pilbeam, 2008; Winslett, 2014). The field of ELT itself can be framed as a profession or service, but can also be conceptualized as business (Pennington & Hoekje, 2014). While practitioners in ELT generally demonstrate a humanist orientation to their field, administrators may be forced take a pragmatic orientation due to market forces such as enrolment numbers (Pennington & Hoejke, 2010).

For CU-TESOL coordinators with a stake in the running of the program, pressure to reach unsaturated markets and showcase innovation was an influential factor in decision-making (Dr Cho, Interview 2, December 2013). CU-TESOL needed to consider "the bottom line" (Luke, email, October 2013). In that light, efforts were

made to control the CU-TESOL Program's external image. In the grandiose opening ceremony, a sleek video on the university and program's mission ran before the TEs speeches, declaring the program the "Best in Asia." Traditional scholarly artefacts (Bagley & Hillyard, 2011), such as a ceremonial tassel, were prominently displayed. In contrast to the faculty area—a small room housing a little refrigerator, a dog-eared book exchange, and greying walls--- the hallways on the classroom floors featured glass cabinets of gleaming merchandise bearing the TESOL program logo. Mahogany framed pictures and trophies lined the halls. In short, an attempt was made to showcase to stakeholders, including potential clients, the program's notable standing as a place of higher learning within the realm of ELT. This was as its own entity, separate from the larger university.

Budgetary restrictions for the main program had seen TEs devise their own free online methods using Google+. The BLP, however, was a new marketing endeavour that would require a polished look and high functioning features. In the end, a commercial partner was selected to provide the platform.

Perceptions of market forces also figured in at the individual level. Martin García, García del Dújo, and Muñoz Rodríguez (2014) found that Spanish university professors chose to adopt a BLP based in part on SI factors related to their own professional image. Ray and Jeff discussed the issue of getting their credentials online in order to be visible by peers and potential employers in the world ELT market. For Ray, the ageism in teaching (Watts, 2014), particularly in the ELT industry (Mahboob, 2011; Templer, 2003, 2004) afforded him limited time left to teach at a South Korean university.

Force Two: Downward Force From an Accredited Program

Several influences have jointly contributed to an emphasis in Asian ELT on trans-national institutions for credibility and accreditation. These include: burgeoning educational credentialism (Trent, 2015; Zajda, 2012); a discursive narrative of American (Green, 2015) or transnational strength in higher education (Djerasimovic, 2014; Hou et al. 2015; Ziguras, 2001); neoliberal trends in Korea's tertiary

institutions (Jones, 2013; H. Lee & K. Lee, 2013); a growing tendency in Asia's tertiary education towards 'glonacal' (local-national-global) quality assurance (Caruana & Montgomery, 2015; Hou et al., 2015; Nunan, 2003); conceptions of TESOL expertise in the 'empire of English' (Canagarajah, 2015; Phillipson, 2013); and the ingrained NEST ethnocentrism in much of the ELT industry (Johnston, 2006; Liu, 1999; Mahboob, 2011). Although the CU-TESOL General Program was organised, managed, and administered by the faculty in a large city in South Korea, the program was accredited by and observed by an American university. Two professors from the university, renowned in ELT circles, had been instrumental in determining the content and even the delivery style of the program. Though content could be adapted, adherence to a general curriculum and syllabus was compulsory; creating a course on technology use would require approval. The mandated content load was substantial, and a lighter academic load could endanger the program's accredited status. At several times through the research period, the TEs mentioned time constraints due to the amount of content that needed to be 'covered.'

Force Three: A Hierarchy of Program Directors, Coordinators, and Teacher Educators

Self-determination and autonomous motivation predict the intentions of educators to implement pedagogical innovations (Demir, 2011; Gorozidis & Papaiouannou, 2014). In the CU-TESOL Program all focal participants had some autonomy in the way they delivered lessons and could make changes to content with the approval of section coordinators. Collegiality also positively affects ICT-adoption (Deaney & Hennessy, 2007), and I noted a strong collegial atmosphere among the TEs. As I passed their open office doors I could observe a casual intermingling of TEs discussing pedagogical concerns. Participants referenced one another and used 'we' statements during interviews. They also helped one another: co-presenting at a conference, aiding another teacher in website set-up, and sharing technology ideas with other YL instructors.

Nevertheless, it was clear that a keen awareness of the existing organizational hierarchy (see Figure 14) guided some of the technology adoption decisions in CU's TESOL program. The positioning of each participant within the hierarchy likely

impacted technology integration, in part because of the leadership styles and personalities of the participants.

With the BLP the power of the hierarchies was highly visible. The TEs, even ones set to leave the program, expressed an interest in adding knowledge of teaching online to their skillset and indicated their eagerness to contribute to the online content. However, there were some mentions of disappointment by the TEs that they were being asked to design a new program with limited compensation and a perception that they were being required to work outside of the stipulations of their contracts and without training. Orlando (2014) notes how veteran teachers whose schools were undergoing ICT reforms were "protective of continuing to place time into something they did not have ownership over" (p. 232). While the TEs demonstrated willingness to invest the time, fatigue from perceived one-sidedness began to encroach on voluntariness. Porter et al. (2016) found a high percentage of higher education instructors cited time incentives through course load reduction (rather than financial ones) as an influential factor in their intentions to adopt a BLP.

Force Four: Teacher Educators Forcing Trainees to Use Technologies

In technology-heavy teacher training contexts, it is now generally the case that teacher trainees are asked to learn to use some new technologies (Howe, 2014; Kearney & Maher, 2013; Martinovic & Zhang, 2012, Wetzel, Buss, Folger, & Lindsey, 2014). In the CU-TESOL Program, TEs adopted technologies that trainees were then required to use. A prime example included the requirement that trainees sign up for and use Google+ or ClassJump. Training time needs to be invested to ensure the effectiveness of blended learning options (Spanjers et al., 2105), and LMS adoption may require a top-down approach at times (Goncalves & Pedro, 2012). The TEs in this study used multiple rationales to choose the LMSs, including perceived EE for trainees. However, it was notable that in neither case was a South Korean-designed platform (e.g.: Naver or Kakao Groups) implemented by the TEs despite their familiarity with the tools. Rather, trainees were forced to adapt to a platform that the TEs themselves selected. Since the early days of Internet-based learning, there has been a concern that online education can reinforce the cultural-information

imperialism of Silicon Valley (Ziguras, 2001). In choosing platforms and technologies, the TEs mentioned linguistic accuracy and fluency objectives as a motivating 'force,' but it appeared more likely that habit and familiarity with certain products bore more heavily on behavioural use.

Force Five: Individual Teacher Educators Forcing Themselves to Adopt a Behaviour

A final salient force was TEs putting pressure on themselves regarding their cognitions, their practice, and their adoption of 21st-century technologies. This may have been related in some cases to perceived SI and market factors. However, there was also the added element of TEs' own self-perceptions about their roles and their need to motivate themselves (Hökkä & Eltäpelto, 2014). Participants stated appreciation for technology 'forcing' them to adopt behaviours deemed desirable.

In brief, the TEs were busy employees (Solbrekke & Surgrue, 2014) who also recognized the importance of professional learning (Cochran-Smith, 2003; Grierson, 2010; Williams, 2014; Young & Erickson, 2011). In the absence of mandatory professional development, they seemed to relish designing their workflow and workload in such a way as to force themselves to grow authentically (Rappel, 2015), reinforcing their position as professional practitioners possessing 'personal innovativeness' (Tan, Ooi, Leong, & Lin, 2014). Context matters in ICT adoption (Ashrafzadeh & Sayadian, 2015; MacKinnon, 2012). It has been argued that in workplace scenarios, SI from supervisors affects intrinsic variables such as attitude toward use (Karahanna & Straub 1999; Roca & Gagne, 2008; Yoo, Han, & Huang, 2012). However, the special case of professional educators as both independent professionals and employees in a hierarchy means that the issue of force is somewhat more complex than in many organizational scenarios (Pynoo et al., 2011), with a constant interplay of intrinsic and extrinsic motivators (Berry, 2007; Lin, 2015; Prestridge, 2012; Van Uden, Ritzen, & Pieters, 2014). In educational settings, technology adoption may be the result of policy or fashion rather than of individual factors (Wang, 2010); however, the multi-directional flow of forces surrounding the TEs in this study are a reminder that policy and trends may stem from bottom-up and internal processes, with educators experiencing various stages

of concern regarding the adoption process (Oda, 2011; Ashrafzadeh & Sayadian, 2015).

8.2.2 Understanding #2: TESOL Teacher Educators May Demonstrate High Levels of TPACK for Fluency Enhancement but Not for Accuracy Work.

The TEs in this study demonstrated high levels of TPACK self-efficacy for the teaching of TESOL content. This was displayed in a number of ways. All five of the participants showed they knew how to initiate and actively manage an LMS and a class website to enhance trainee interaction with content and with each other outside of the class. They all selected and used new multimedia resources for in-class and out-of-class uses. All five focal participants exhibited confidence in their own abilities to select appropriate technologies and match pedagogy and content, and they noted their self-efficacy in using a variety of tools for pedagogical purposes, as evidenced in responses to the digital skills survey. Moreover, this TCK was obtained with no special training from the university.

Language development was attempted through CLIL, which puts greater emphasis on opportunities for contextualized fluency practice (Hüttner & Smit, 2014). However, even in CLIL contexts language accuracy work is still a part of language proficiency building. When language teachers use technologies in class rather than merely recommending them, they are more likely to see out-of-class uptake by learners (Lai, 2015; Lai & Gu, 2011); in-class modelling of ICT for language learning can aid in learners' self-directed technology use (Lai, 2015). In the General Program, feedback on accuracy primarily took the form of recasts in classes, answers to direct questions, and editing symbols noted on the printed papers turned in for the Writing class. In the YL-TESOL program, I observed feedback on errors in spoken recasts, with written feedback primarily content-related. Other than a single intention to use tablet storybooks for vocabulary practice, I did not observe innovative digital technology uses among the TEs for an explicit accuracy focus. Nor did I witness attention to trainees' self-directed language learning, leaving questions about the nature of TEs' cognitions regarding the pedagogical uses and efficacies of 21st-century digital technologies for accuracy work.

8.2.3 Understanding #3: Teacher Educators May Not Be Explicitly Modelling Instructional Technology Uses

Explicit modelling plays a key role in teacher education; without the overt drawing of attention to specific methods and techniques, opportunities for understanding rationales and reasoning can be lost (Darling-Hammond, 2012; Lunenberg, Kortagen & Swennan, 2007; Murray & Male, 2005; Rodriguez-Arroyo & Loewenstein, 2013; Swennen & Bates, 2010; Swennan, Lunenberg, & Korthagen, 2008; White, 2011). When this occurs, teacher training becomes dissociative rather than integrative (Escobar Urmeneta, 2013). In the current study I observed overt modelling by the TEs (games and chants, moments of reflection in writing classes, overt questioning on processes in decoding an Eastern European movie poster, and metalinguistic questions) but discerned little overt awareness-raising regarding pedagogical uses of 21st-century digital technologies. All participants asserted that trainees required knowledge of technology use for their teaching, but they disagreed on its required position in CU's training courses. Similar to the TEs in Goktas, Yildirim, and Yildirim's (2008) research, the general view among the present study's participants was that trainees required a core base of content and pedagogical techniques, and that the integration of technology uses could come later.

The participants expressed the concern that the rush to get through all the content allowed little time to include information about education technologies. They gave this constraint as the cause for their decreased emphasis on the explicit teaching of how to use technologies for ELT. However, the TEs were already modelling digital ICT use through their LMS, use of the tablets, video reflections, and more. The missing aspect was the drawing of explicit attention to this modelling. It is conceivable that only a little more in-or-out-of-classroom time would have been required to make this modelling more noticeable. Hands-on guided experience is helpful and perhaps even required for efficient and effective ICT integration among teacher trainees in their PRESET programs (Garrett, 2009; Izmirli & Yurdakul, 2014; Kerckaert, Vanderline, & van Braak, 2015; Rowley & O'Dea, 2010; Sessoms, 2007). Teacher trainees may for example, envision teaching in alignment with the TPACK

framework but want more explicit TPACK-modelling in their methods courses (Wetzel, Buss, Foulger, and Lindsey, 2014). In matters of technology integration, as in other areas of learning to teach, overt modelling is key.

8.2.4 Understanding #4: Teacher Educators May Use Technologies Differently for Young Learner and General TESOL Courses

Interestingly, participants of the study differed in their uses of technologies depending on whether they were working with trainees in the YL or General Program. TEs in the YL group perceived a program-wide focus on analogue products such as paper-based games, laminated paper slates, cardboard and felt projects. No program-wide LMS was in place for the YL program, no BLP was planned for the YL program, and trainees were not encouraged to explore digital options to use with their future students. The feeling among the program coordinators seemed to be that YL-TESOL required a face-to-face hands-on approach. This attitude echoed the thoughts of YL teacher participants in Loveless (2003) and Mama and Hennessey (2013), but contrasted with advice that YL language learning can be enhanced through the advantages of authenticity and engagement accessible through ICTs (Nemtchinova, 2007; Nikolopoulou & Gialamas, 2015). Teacher candidates require explicit training in the critical, ethical, and safe use of ICTs for educational purposes with young learners (Shin, 2015); however, the YL-TESOL program's paper-based approach seemed to neglect this need.

Assignments in the General Program gave a slight nod to digital technologies. For example, the lesson plan forms for the micro-teaching lessons contained a small section about technologies in reference to required materials. Though they were not explicitly encouraged to do so, trainees frequently used presentation software and online video clips in the micro-teachings. Nevertheless, overt attention to trainees' TPACK development through assignments and feedback was minimal. Graham et al. (2012) argue that TK is a precursor to TPACK building. However, Pamuk (2012) asserts that teachers must prioritise the acquisition of PCK before technology integration. It would seem that participants in this study sided with Pamuk's argument in favour of a PCK focus.

8.2.5 Understanding #5: Cognitions and Practices Can Simultaneously Align and Misalign Due to Effort Expectancy

As I discussed in the review of the literature, some researchers have found congruence between educators' cognitions and practices (e.g.: Borg, 2003; Fang, 1996; Gatbondon, 2008; Golombek & Doran; 2014; Johnson, 2009; Kagan, 1992; Kubaniyova, 2012; Munby, 2001; Nespor, 1987; Pajares, 1992; Prestridge, 2012; Richards & Lockhart, 1994; Richardson, 2003; Tsui, 2003;; Woods, 1996; Woods & Çakır, 2011), while others have noted incongruence (e.g.: Borg, 1999; Borg, 2013; Borg, 2015; Fishbein & Azjen, 1975;; Guskey, 1986; Hüttner, Dalton-Puffer, & Smit, 2013; Kagan, 1992; Melketo, 2012; Phipps & Borg, 2009). Basturkmen's (2012) analysis reveals that reports of correspondences between espoused and enacted beliefs occurred when the educators were experienced and the teaching situations involved planning. In this case study, I found both cognitive-behavioural connections and discrepancies.

All five focal participants displayed an alignment between their cognitions of the pedagogical uses and efficacies of 21st- century digital technologies and their behaviours. Each TE expressed a belief in the inevitability and power of technologies for ELT and took action to learn about and adopt these. The TEs all said they thought that technologies had powerful collaborative and reflective uses and they used the technologies to this effect in their classes.

However, incongruences between cognitions and practices were also evident. The participants generally thought trainees needed to know about technology in the classroom but did little to push them to incorporate technologies innovatively into their own work. They also did little explicit awareness-raising regarding the technologies being used in the program. Technologies were used to observe teachers in other contexts (e.g.: online teaching videos), but attention was not drawn to how video or videoconferencing might be used in trainees' future classrooms.

It has been noted (Farrell, 2015; Johnston, 2013) that what is learned in PRESET programs is often a vast under-representation of the reality that L2 teachers face in classrooms. A practicum component was mentioned as an important missing element of the program overall, but there seemed to be little investigation of a technological solution could help with the problem of insufficient classrooms (e.g.: Cheong, 2010). Moreover, TEs did not employ classroom technologies that they knew how to use and wanted to try out. In many cases it seemed the misalignment could be due to the barrier of high EE more than that of PE. For example, all five of the focal participants used markers and a whiteboard despite the presence of a computer and projector and in spite of the illegibility of board-work from the back of the classroom.

The UTAUT-based literature reports mixed findings on the relative importance of PE and EE in ICT adoption. It is known that PE is important in teachers' adoption of ICT (Scherer, Siddiq, & Teo, 2015; Teo, 2015). However, some studies (Buchanan, Sainter, & Saunters, 2013; Petko, 2012; Shibl, Lawley, & Debuse, 2013) found PE more influential on behavioural intention. Others confirm the crucial impact of EE on behavioural intention (Attuquayefio & Addo, 2014; Avdic & Eklund, 2010; Birch & Irvine, 2009; Moran, Hawkes, & el Gayar, 2010; Oh & Yoon, 2014; Tan, 2013; Teo, 2011; Teo, Lee, Chai, & Wong, 2009). It is clear that participants in the present study frequently adopted technologies with high PE despite perceived difficulties in EE. It is therefore conceivable that the factor of habit (Belland, 2009; Venkatesh et al., 2012) mediated on behavioural use in instances where behavioural intention and FC were present but where behavioural use was not evident.

8.2.6 Understanding #6: 'Digital Nativism' and Age Are in the Eye of the Beholder

In the field of ELT, much issue has been taken with the concepts of native versus non-native speakers (Canagarajah, 2004; Pennycook, 2006, 2010), and the NEST/NNESTs label are loaded with political import despite the vagueness of these concepts. So it is, too, in educational technology circles with the ill-defined concepts of 'digital native' and 'digital immigrant.' With the emergence of Web 2.0 technologies, Prensky (2001, p. 2) asserted that "our students today are all 'native

speakers' of the digital language of computers, video games, and the Internet" and that,

> those of us who were not born into the digital world but have, at some later point in our lives, become fascinated with and adopted many or most aspects of the new technology are, and will always be, compared to them, Digital Immigrants. (Prensky, 2001, p. 2)

Prensky (2001) argued that 'digital immigrant' educators were not in step with the needs of their 'digital native' students. These terms were then popularized in educational circles and since 2001 have been widely used to denote a generational gap between younger students, trainees and older teachers, and TEs (e.g.: Dečman, 2015; D. Kim, 2009; Lei, 2009; Prensky, 2010; Szeto & Cheng, 2013; Thomas & O'Bannon, 2013).

Critics of the 'digital native' concept point out that L1 language learning is an innate ability, while the ability to use an electronic tablet is not. For fluent ICT use, explicit practice is required, programs must be learned, and active time on task must be invested. Moreover, there is limited evidence that younger generations have the grasp on technology assumed by Prensky of "all" (2001, p. 2) our students. Guo, Dobson, and Petrina's (2008) look at ICT use in teacher education found no statistical difference in use behaviour among age groups. Cheong (2008), Hargittai (2010), and Ladbrook (2014) pointed out the limited technology skills of members of the so-called Net generation. Bennett and Maton (2010) dissected the terms' lack of nuance.

Just as the NEST/NNEST labels have policy and self-efficacy implications (Hiver, 2013), pre-conceptions regarding educators' technology uses along generational lines may weigh on trainees' self-efficacy and treatment in a training setting. I observed among the participants mixed perspectives of the term 'digital native' and incongruence even among TEs of the same age as to how they described themselves and their trainees.

The ICT-related literature generally treats age as a straightforward demographic factor, and survey-based studies have reported significant effects from age on users' (Magsamen-Conrad et al., 2015) and educators' intention to use technologies (Birch & Irvine, 2009; Dulle & Minishi-Manjanja, 2011; Min, Jin, & Qu, 2008; Okazaki, 2005; Venkatesh et al., 2003, 2012). Some of these studies have focused on EFL instructors (e.g. Rahimi & Yadollahi, 2011). However, the present study reveals that among TESOL-TEs, age is in fact a complex construct with a complicated relationship to technology. Similarly-aged participants not only had different backgrounds in ICT use but had divergent views of their trainees' ages in relation to ICT use. Scherer, Siddiq, and Teo (2015), in dissecting the sub-constructs of PE, note that self-efficacy, a personal belief, differs from perceived usefulness, a normative and behavioural belief. They found that a higher age among teachers correlated with lower self-efficacy and a higher mistrust of ICT. However, it is important to note that self-efficacy in ICT use develops with training (Scherer et al. 2015) no matter the age of the teacher.

In other fields, scholars have noted the fuzzy concept of age. Social-psychologists assert we are aged by self-awareness, cultural, and historical norms (Diehl et al., 2014). In medical science, Belsky et al. (2015) found that 'biological aging' (the declining integrity of organ systems) varied greatly compared to chronological aging in young people. As the present study indicates, chronological age and cultural age may diverge from an 'ICT behavioural use age' in TEs.

8.3 Discussion of the Six Understandings: Pedagogical Implications

Pring (2015) decries the uniqueness fallacy inherent in criticisms of qualitative ethnographic study, highlighting the similarities shared by educators across space and time. Although the present case study focused on participants in one PRESET program in South Korea, the findings reveal a number of pedagogical implications and considerations for other language TEs, program coordinators, and administrators at tertiary institutes.

How Can Technology Integration Occur?

One important implication is that even in the absence of a costly commercial platform or official training, TEs who have self-perceived high levels of TPACK, low EE, high PE, and high FCs (including reliable Internet access, device-owning trainees, and the administrative freedom to impose on trainees the requirement to use 21st-century digital technologies) *can* integrate technologies into teacher education. They can do it individually, without intervention from program administrators, and they can do it program-wide. TEs working in programs outside of a university's main credit courses can implement technologies even with no official sanctioning from the university, such as in the creation of their own LMS.

It was also found that to ease EE and reap the time-saving benefits of systemic integration, an administrator with a vocal, directive leadership style who believes in the value of technologies may be important, echoing findings from other studies (Park & Jeong, 2013; Tosuntaş, Karadağ, & Orhan, 2015). In this case study the strong gatekeeper was primarily Ray (although Dr. Cho also took on that role to push through the BLP).

Some 'force' may be beneficial (Park & Jeong, 2013) as was the case for Luke, who ultimately found Google+ helpful, but who may not have initiated such an LMS on his own. However, the importance of TE buy-in must not be underestimated (Drent & Meelissen, 2008). It is crucial to note that just because TEs with high TPACK and facilitating conditions *can* find individual and shared solutions without institutional support, it does not mean that this is an ideal path for administrators to follow (Boei et al., 2015). This was demonstrated in the BLP planning. The TEs demonstrated personal entrepreneurship (Drent & Meelissen, 2008), and had invested much time into researching, discussing, selected, trialling, and integrating new digital technologies such as apps, video upload, and LMS into their pedagogical practice. They pursued time-consuming professional learning initiatives such as enrolling in MOOCs and doctoral studies, reading and writing educational tech-related blogs, purchasing and learning to code a robot, becoming a Google Educator, and leading in a professional organization. Moreover, they volunteered to participate in the

present study, devoting their time and energy to a stranger's research simply for the expected return of professional learning and a reflection opportunity. These initiatives were self-initiated and self-funded.

However, when 'will and skill' (Petko, 2012) were requirements imposed from above with no remuneration, training, or extra time, and when EE became too high, some participants perceived being overworked, undercompensated, working outside the limits of their contracts, and frustrated with the lack of support. Program directors should not simply leave high-TPACK TEs to their own devices to figure out 'what works' (Webster & Son, 2015). Moreover, for programs enforced from above like the synchronous component of the BLP, TE burnout and employee resentment may increase in the absence of the mediating factor of HM. Training and administration-faculty cooperation are still needed (Ashrafzadeh & Sayadian, 2015); with this study's participants, the lack of communication between the South Korean office staff and the expatriate faculty hindered some technology adoption.

How Are Trainee Needs Interpreted?

A second important implication regards TEs' cognitions of their roles in relation to trainee needs. The TEs in this study self-identified as teachers and referred to their trainees as students. They largely viewed their role primarily as related to the teaching of curriculum content and secondarily to the teaching of language skills. This was especially true for those working in the General Program, where the more academic, applied linguistics-focused curriculum could be used as a lead-in to the university's Master's of TESOL program. It was also the case in the courses with high-proficiency international students. However, even in the YL program, explicit language accuracy was deemphasized. With an emphasis on their role as teachers of content, including the teaching of TESOL techniques, the TEs in this research sought out and integrated technology applications that would help with these aspects of teaching and learning rather than technologies designed to focus specifically on language learning.

Moreover, even when language learning was the focus, the language-content imbalances Ray had noted and that are frequently inherent in CLIL approaches (Hüttner, Dalton-Puffer, & Smit, 2013, Long, 1996; Lyster & Ballinger, 2011), and the tendency in such programs to use recasts for learner error repair (Llinares & Lyster, 2014; Sheen, 2006) may have meant a reduced emphasis on language learning within the program. While CLIL itself is ill-defined (Cenoz, Genessee, & Gorter, 2014), it is known that CLIL instructors tend to be either content specialists or language specialists, but rarely both (Strotmann et al., 2014). TESOL-TEs are that rare exception, but it is not clear that they can ably balance both roles simultaneously in PRESET programs, and the literature offers little information regarding this important role of TESOL-TEs.

And yet the CU-TESOL Program's marketing materials indicated an even split in the focus on content and language learning in the program. One of the TE participants confided that many of the trainees joined the program primarily to improve their EL skills and had no intention of pursuing a career in ELT; it has also been found that some trainees in South Korea join TESOL programs in order to teach their own children, and have low self-efficacy in their own EL abilities (Croner, 2013). If that was the case with the CU-TESOL Program's trainees, it is possible that the cognitions and practices of the TEs who were instrumental in integrating the technologies may have differed from trainee- or program- stated objectives (Hökkä & Eltäpelto, 2014). The important pedagogical implication here is that even when the cognitions of language TEs match their own practices, their cognitions may be at odds with external expectations (Ingleby, 2014; Skinner & Abbott, 2013). Investigations of technology uses, such the analysis conducted in the present study, may reveal discrepancies.

Is Explicit Modelling Occurring?

Finally, a key related implication is that there may be underuse of the specific modelling of TPACK-related decision-making, echoing the findings of Lunenberg, Korthagen, and Swennan (2007). Some PRESET programs including MOE-run programs feature a specific educational technology course. Such programs can be

disjointed, however, as they separate technologies from other sides of TPACK. Although implicit modelling has some power (Loughran & Berry, 2005; Lunenberg, Kortagen, & Swennen, 2007; Regenspan, 2002; Swennan, Lunenberg, & Korthagen, 2008), the opportunities afforded by the explicit drawing of attention to technology-related pedagogical choices may be more effective and can time-saving. TESOL-TEs, many of them achieving their positions with no formal training in 'teacher educating,' (Dinkelman, 2011; Lunenberg & Hamilton, 2008) may not be cognisant of this need.

8.4 Implications for Further Research

This is the first study to investigate the cognitions and practices of native English-speaking TEs in South Korea in relation to the pedagogical purposes and efficacies of 21st-century digital technologies. In addition to the pedagogical implications emerging from this study, this research reveals numerous implications for further research. First, it contributes to the under-researched area of TESOL-TEs' cognitions and practices regarding 21st-century digital technologies. In doing so, the study raises questions about how TEs' cognitions and practices may influence trainees' future pedagogical uses of technologies. This area was left unexplored in the present study. Such research would require both a longitudinal look at TE thinking and practice and a larger case study with trainees.

Second, it was found that the participants in this study had high self-perceived TPACK and access to technologies. Other contexts should be critically explored to further tease out factors of the UTAUT. Although CU's TESOL program shares elements of other teacher training programs, it is considered a premier offering among the limited face-to-face choices in South Korea, and was the first to incorporate a blended learning option.

Third, information from the present study may be used in honing surveys for quantitative measures that combine the TPACK with the UTAUT to find a crossover between cognitions and practices related to the pedagogical uses of technologies. It is clear that TEs may fit neither a straight consumer profile nor that of an employee

but rather a category in between. A refinement of the UTAUT and UTAUT 2 to accommodate and distinguish between these dual roles would be beneficial. It is therefore recommended that more in-depth qualitative and quantitative research employ the UTAUT/UTAUT 2 for a closer investigation of the factors that bear on facilitating conditions.

Fourth, this study raises questions on intercultural factors involved when non-Korean TEs select technologies to be used with South Korean trainees. It is frequent for TEs in many TESOL training programs around the world to be 'self-initiated expatriates' (Froese, 2012) working with local trainees. Their cognitions of locally popular technologies may vary, and as the range of technology choices both expands and is appropriated by the giants of cloud computing, this area of research deserves increased attention. The literature has considered the imperialistic facets of ELT (Mahboob, 2011) and of English as a lingua franca (Canagarajah, 2004; Pennycook, 2006). The time has come for a deeper exploration of the intercultural usability (Son & Park, 2012) of western-imported technological products and the international field of ELT. Differences in meaning may exist in the mediation of language and cultural learning through home-based or foreign interfaces (Kern, 2014). Just as academia has grappled with the proposition of English-as-an-international-language in the new world "linguascape" (Pennington & Hoejke, 2010, p. 4), the concept of 'Google-as-an-international-language' in the minds of TEs may have important repercussions for ELT.

Finally, research on TEs of other foreign languages and TEs in general, while emerging, is sparse. To attain the same levels of educational research available on teachers and on students, much more study on TEs is required, including quantitative, mixed methods, and phenomenological research.

8.5 Limitations of This Research

Five key limitations mark this research. First, as an instrumental multiple case study, it tracked only five focal participants and two additional participants over a twenty-

week period in a large city in South Korea. The conclusions that are drawn, while transferable (Pring, 2015), are not generalizable. Second, as a purposive volunteer-recruited study, this research lacks perspectives from all of CU's TEs. Although a reduction in participant numbers enabled a greater depth of research, it is possible that there is something distinctive about the kinds of TEs who would volunteer their time and effort for an in-depth study. Third, this research focuses solely on TESOL-TEs. While EL education forms the bulk of L2 teaching around the world (Durham, 2014), trainers of teachers of different languages may find other factors influencing cognitions, practices, and uses. Fourth, although it investigated in depth curriculum materials and reflections, this research involved just two classroom observations per participant. More classroom observations would be desirable to compare in-class and out-of-class work. Fifth, due to the limited number of participants, the maintenance of anonymity required some suppression of interesting findings.

8.6 Conclusion

Despite these limitations, this original and deep exploration of the cases of five TEs and their cognitions, practices, and influences in relation to integrating 21st-century technologies into their pedagogical practice has contributed to the primary aim of filling a gap in the literature and adding to academic understanding of the largely unexplored world of ICT-using TESOL-TEs, with particular attention to non-Korean TEs working in technology-rich South Korea. It is hoped that these understandings will inform the cognitions and practices of TESOL-TEs and program leaders and will ultimately strengthen research in this area as TESOL teacher education heads further into the 21st century and beyond.

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APPENDIX A: SELECTED EXAMPLES OF 21ST-CENTURY DIGITAL TECHNOLOGIES AND DEVICES AVAILABLE IN THE FALL OF 2013 IN SOUTH KOREA

Technology	**Explanation (adapted from Google Define, July 15, 2015)**	**Example**
Blog	A regularly updated website or webpage, typically run by an individual or small group, that contains personal reflections, comments, and hyperlinks	Blogger, Edublog, Wordpress, Blogspot
Discussion board/ Message Board	An internet site where people can read and post messages, usually on a specific topic or area of interest	Google Plus,
Electronic Portfolios	A collection of electronic evidence, such as students' journals, via the Internet	ePortfolios
File Sharing	Software that enables the electronic transmission of digital files	Dropbox, SugarSync
Instant Messaging	A system for the exchange of typed electronic messages online or via cell phone	Kakao Talk, MSN Messenger, Facebook Messenger
Interactive White Board (IWB)	A large interactive display that connects to a computer	SMARTboard, Promethean
Learning Management Systems (LMS)	A software application for the administration, documentation, tracking,	Blackboard, ClassJump, WebEx Desire2Learn, Ning, Edmodo, Google

	reporting, and delivery of e-learning	Education
Massive Online Open Course (MOOC)	A course made available over the internet without charge to a very large number of people	Coursera, EdX
Microblogging	A social media site in which users make short, frequent posts	Twitter
Note-taking and Workflow Management Software	Software in which to store photographs and annotated notes	Evernote, Google Drive
Online Document Suites	Collections of word-processing, spreadsheets, and presentation graphics	Google Drive
Online Pen Pals	People with whom to exchange electronic correspondence for sociable learning	E-pals, Skype Education
Podcast	A digital audio file posted on the internet that can be downloaded	Voxopop (software)
Presentation	An ubiquitous slide-making tool	Google Presentation, Prezi, Zoho
Smartphone	A cellular phone that has the Internet and app functions of a computer	iPhone, LG, Samsung
Social Bookmarking	Tagging pages stored on the web for personal retrieval	Delicious, Diigo, Simpy
Social Networking Site	An application/website that enables users to communicate with each other by posting information, images,	Facebook, Google Plus, LinkedIn, Twitter

	messages	
Spreadsheets	An e-document in which data is arranged in the rows and columns of a grid	Google Spreadsheets
Tablet	A computer device that allows input to be put directly on the LCD screen	iPad, Samsung tablet
Student Response Systems	A wifi-enabled information exchange system in which students can respond textually to instructor requests for information (can be used via “clicker” devices or enabled via smartphone)	Socrative (app); Poll Everywhere
Videoconferencing	Real-time, synchronous transmission of “live” video chat via the Internet	Skype, Google Hangout
Video Sharing Site	A website where people can upload and share video clips with the public or invited people	Youtube, Teachertube
Wiki	A website that allows collaborative editing of its content and structure by its users	Wikipedia, PB Works
Word Cloud	An image made up of the words from a particular text	WordCloud, Tagcrowd, Wordle

APPENDIX B: AN OVERVIEW OF TECHNOLOGY ACCEPTANCE MODELS

The Theory of Reasoned Action (TRA)

Fishbein and Azjen's (1975) Theory of Reason Action, a model not specific to technology acceptance, aims to predict people's behaviours based on their attitudes and perceptions or the attitudes and perceptions of others deemed important or influential to those under investigation. A main tenet of this theory is that individuals consider the consequences and implications in making rational decisions. The core constructs of the TRA are attitude toward behaviour and subjective norm.

The Motivational Model (MM)

Core to many studies and models of human behaviour in relation to interactions with technologies are the constructs of the Motivational Model, stemming from the work of Vallerand et al. (1992) and Davis, Bagozzi, and Warshaw (1992). This model focuses on intrinsic versus extrinsic motivation in a bid to explain why people would choose to use a technology.

The Theory of Planned Behaviour (TPB)

Ajzen (1991) further developed the TRA by adding the construct of "perceived behavioural control"—a person's view that internal or external factors constrain their choices of behaviour. The TPB posits that behaviours stem from an interaction of perceived behavioural control, subjective norms, and attitudes toward behaviours.

The Technology Acceptance Model (TAM)

A great number of studies on human-computer interaction (HCI) have employed the TAM for analysis. First proposed by Davis in 1985, and later developed in 1989, this model looks at people's intention to use and actual uses of technology based on the two key concepts of perceived usefulness and perceived ease of use. In this

conceptualization, perceived ease of use (the belief of the extent to which using the technology would be effortless) affects perceived usefulness (related to job performance), which then affect behavioural intentions, and ultimately, actual technology use (Davis & Venkatesh, 1996). While this model still enjoys immense popularity, critics note that by excluding social variables and ignoring whether use is voluntary or mandatory, its measures lack comprehensiveness. Updated versions (TAM 2, TAM 3) have attempted to account for these missing factors.

The Combined TRA-TPB (Decomposed Theory of Planned Behaviour)

Taylor and Todd's (1995) DTPB (or Combined TRA-TPB) splices elements from the TAM with those of the TPB by adding to the latter theory the constructs of usefulness and ease of use. In this model, behavioural beliefs are decomposed into users' perceived usefulness, ease of use, and compatibility; normative beliefs are broken down into influence by peers and superiors, and control beliefs are decomposed into the factors of self-efficacy and the facilitating conditions of technology and resources. As with the TPB, this model remains hierarchical, with the prediction that people's beliefs and intentions affect their technology usage.

Model of PC Utilization (MPCU)

Developed by Thompson, Higgins, and Howell in 1991, the MPCU adds a twist on the TPB and TRA by looking at the actual usage of technologies rather than focusing on people's intentions. The core constructs of this model are job-fit, complexity, long-term consequences, affect towards use, social factors, and facilitating conditions

Social Cognitive Theory

Investigations of how people learn socially have led to social cognitive theory (Bandura, 1986), which maintains that personal and environmental factors, as well as aspects of the behaviour under investigation ultimately affect behavioural change. Compeau and Higgins's (1995) application of this theory to technology usage resulted in the finding that a person's self-efficacy related to technology and a belief that a positive outcome would result from employing technology would

impact the usage itself. The core constructs of this theory, as shown in Venkatesh et al. (2003) are outcome expectations (personal and performance), self-efficacy, affect, and anxiety.

Innovation Diffusion Theories

Developed by Rogers (1962, in 2004) as a communications-based model to trace how the adoption of a new idea, product, or behaviour spreads, Diffusion of Innovations theory marks five major categories of adopters: innovators, early adopters (opinion leaders), early majority, late majority, and laggards. According to this theory, the five factors influencing whether or not an innovation is adopted are its 1) perceived relative advantage (how much the innovation seems better than a precursor model), 2) compatibility (does it fit the values of potential adopters?) 3) complexity (is it easy or hard to use?), 4) trialbility (can it be tested?) and 5) observability (are there tangible results?). Moore and Benbasat (1991) later developed these constructs into a set of seven core concepts: relative advantage, ease of use, image, visibility, compatibility, results demonstrability, and voluntariness of use.

APPENDIX C: CONSTRUCTS OF THE TPACK MODEL (KOEHLER AND MISHRA, 2009, P. 60-70)

Construct	Brief Definition	Explanation
Content Knowledge (CK)	"Teachers' knowledge about the subject matter to be learned or taught."	"Concepts, theories, ideas, organizational frameworks, knowledge of evidence and proof…established practices and approaches toward developing such knowledge."
Pedagogical Knowledge (PK)	"Teachers' deep knowledge about the processes and practices or methods of teaching and learning…overall educational purposes, values, and aims"	**"**How students learn, general classroom management skills, lesson planning, and student assessment"
Technology Knowledge (TK)	**"**Knowledge about certain ways of thinking about, and working with technology, tools and resources…and working with technology can apply to all technology tools and resources"	**"**Understanding information technology broadly enough to apply it productively at work and in everyday life, being able to recognize when information technology can assist or impede the achievement of a goal, and being able continually adapt to changes in

		information technology”
Pedagogical Content Knowledge (PCK)	“Central to Shulman’s conceptualization of PCK is the notion of the transformation of the subject matter for teaching.”	“The core business of teaching, learning, curriculum, assessment and reporting, such as the conditions that promote learning and the links among curriculum, assessment, and pedagogy”
Technological Content Knowledge (TCK)	“An understanding of the manner in which technology and content influence and constrain one another.”	“Teachers need to understand which specific technologies are best suited for addressing subject-matter learning in their domains and how the content dictates or perhaps even changes the technology—or vice versa”
Technological Pedagogical Knowledge (TPK)	“An understanding of how teaching and learning can change when particular technologies are used in particular ways.”	“Knowing the pedagogical affordances and constraints of a range of technological tools as they relate to disciplinarily and developmentally appropriate pedagogical designs and strategies”
Technological Pedagogical Content Knowledge (TPACK)	“Underlying truly meaningful and deeply skilled teaching with	“The basis of effective teaching with technology, requiring an

	technology”	understanding of the representation of concepts using technologies; pedagogical techniques that use technologies in constructive ways to teach content; knowledge of what makes concepts difficult or easy to learn and how technology can help redress some of the problems that students face; knowledge of students’ prior knowledge and theories of epistemology; and knowledge of how technologies can be used to build on existing knowledge to develop new epistemologies or strengthen old ones.”

APPENDIX D: PARTICIPANT INFORMATION SHEET

Participant Information Sheet

Dear Esteemed Professors of the [Central University] TESOL Faculty:

- As a busy teacher educator, do you ever find it hard to just sit down for a moment and systematically collect your reflections?
- Are you interested in sharing your thoughts about your teaching practice and beliefs with an engaged listener/ sounding board?
- Would you like to help make an important contribution to the world's body of knowledge about L2 teacher education by sharing your voice?

I am a teacher at Korea University and am about to start the research component of my doctoral dissertation (Education, Durham University, UK). I am hoping to do a qualitative case study related to teacher educator beliefs and planning. Right now, I am testing the waters as to how many teacher educators from the [Central University General-TESOL and YL-TESOL] programs may be interested in participating in a case study.

Your colleague, [Ray], suggested that you might be interested in taking part in this in-depth qualitative study as a beneficial reflective exercise. If so, I would love to get in touch with you.

As a participant in this Doctoral Study, you would be required to:

1. Complete a teaching profile sheet, giving your contact details, teaching history, current teaching commitments, and other roles related to teacher education at the university;
2. Participate in a minimum of three approximately one-hour long recorded conversations, plus other informal meetings, spanning a period of one semester of teaching, from August 2013 to December 2013, in a place that is convenient for you.
3. Select and share with me feedback, testimonies, and any other materials that you judge to be of importance in articulating your beliefs as a teacher educator;
4. Share with me your syllabus, lesson plans, assignment instructions and other materials related to teacher education courses you teach at the university from August-December 2013;
5. Be prepared to have your teaching observed at least once from August - December 2013;
6. Write a minimum of six reflective journal entries from August to December 2013.
7. Comment on and verify conversation transcripts and interpretive material (optional).

This is not an action research project and there is therefore no expectation that you will engage in any action-reflection-evaluation cycle. I aim to record and interpret your self-

perceptions and experiences of the challenges and changes that may occur in your role as a teacher trainer.

I can be reached at [email removed] at [phone number removed]

Thank you so incredibly much for your time!

Best wishes,

Ksan Rubadeau

APPENDIX E: RESEARCH ETHICS AND DATA PROTECTION MONITORING FORM, LETTER OF INTEREST, AND PARTICIPANT INFORMED CONSENT FORM

Durham University

School of Education

Research Ethics and Data Protection Monitoring Form

Research involving humans by all academic and related Staff and Students in the Department is subject to the standards set out in the Department Code of Practice on Research Ethics. The Sub-Committee will assess the research against the British Educational Research Association's *Revised Ethical Guidelines for Educational Research* (2004).

It is a requirement that prior to the commencement of all research that this form be completed and submitted to the Department's Research Ethics and Data Protection Sub-Committee. The Committee will be responsible for issuing certification that the research meets acceptable ethical standards and will, if necessary, require changes to the research methodology or reporting strategy.

A copy of the research proposal which details methods and reporting strategies must be attached and should be no longer than two typed A4 pages. In addition you should also attach any information and consent form (written in layperson's language) you plan to use. An example of a consent form is included at the end of the code of practice.

Please send the signed application form and proposal to the Secretary of the Ethics Advisory Committee [removed] e-mail: [removed].Returned applications must be either typed or word-processed and it would assist members if you could forward your form, once signed, to the Secretary as an e-mail attachment

Name: Ksan Rubadeau Course: EdD IPP

Contact e-mail address: [removed[] or z.k.rubadeau@durham.ac.uk

Supervisor: Dr. Alan Walker-Gleaves; Dr. Caroline Walker-Gleaves

Title of research project: (Project title: **An Investigation into the Beliefs of Teacher Educators)**

Dissertation Working Title: A study of ESOL teacher educators' beliefs in relation to the reflective purposes and efficacies of collaborative 21st century technologies

Questionnaire

		YES	NO	
1.	Does your research involve living human subjects?	X		IF NOT, GO TO DECLARATION AT END
2.	Does your research involve only the analysis of large, secondary and anonymised datasets?		X	IF YES, GO TO DECLARATION AT END
3a	Will you give your informants a written summary of your research and its uses?	X		If NO, please provide further details and go to 3b
3b	Will you give your informants a verbal summary of your research and its uses?	X		If NO, please provide further details
3c	Will you ask your informants to sign	X		If NO, please provide further details

	a consent form?			
4.	Does your research involve covert surveillance (for example, participant observation)?		X	If YES, please provide further details.
5a	Will your information *automatically* be anonymised in your research?		X The sample will be small, and as this is a case study, truly keeping the information automatically anonymous will be difficult.	If NO, please provide further details and go to 5b
5b	IF NO Will you explicitly give *all* your informants the right to remain anonymous?	X		If NO, why not?
6.	Will monitoring devices be used openly and only with the permission of informants?	X		If NO, why not?
7.	Will your	X		If NO, why not?

	informants be provided with a summary of your research findings?			
8.	Will your research be available to informants and the general public without restrictions placed by sponsoring authorities?	X		If NO, please provide further details
9.	Have you considered the implications of your research intervention on your informants?	X Yes, I understand that for participants, this is reflective opportunity but also that the information they share will be reported for research. Before anyone signs on to be case study participants, they will need to fully		Please provide full details

		understand that this is a time commitment and that they will be allowing me to observe classes, conduct interviews with them. They will also be keeping a journal, so I am aware that there are commitments to reveal inner thoughts. In addition, I know that there is an implication for the program itself when teacher trainers reveal details about their work through a		

		case study, and have tested the waters to see if the program head will be okay with this kind of case study.		
10.	Are there any other ethical issues arising from your research?	X I realize that in conducting a case study intending to be an outsider, I will get to know the participants and in some ways, become an insider, even though I intend for this study to take place at another university with teacher trainers I have not yet met.		If YES, please provide further details.

Further details

Continuation sheet YES/NO (delete as applicable)

Declaration

I have read the Department's Code of Practice on Research Ethics and believe that my research complies fully with its precepts. I will not deviate from the methodology or reporting strategy without further permission from the Department's Research Ethics Committee.

Signed ……Zoe Ksan Rubadeau

Date: …June 7, 2013……

SUBMISSIONS WITHOUT A COPY OF THE RESEARCH PROPOSAL WILL NOT BE CONSIDERED.

Research Proposal:

Dissertation Working Title: A study of ESOL teacher educators' beliefs in relation to the reflective purposes and efficacies of collaborative 21st century technologies (Project title: **An Investigation into the Beliefs of Teacher Educators)**

As is becoming increasingly common around the globe, the use of 21st century technologies in teaching is a national mandate for teachers in Republic of Korea (ROK), writ into law by the Ministry of Education, Science, and Technology (MEST, 2011). However, despite the availability of off-line and online teacher training through programs and the government's EDUNET project, the use of ICT in English education is perhaps not as widespread as it appears. How teacher educators feel about and use ICT could impact the outcomes of teacher education. Regenspan (2002) and Lunenberg, Korthagen, & Swennen, 2007) remind us that teacher educators, unlike trainers in other professions, have the dual role of supporting learning but also acting as a model of teaching. At the same time, teacher educators may model teaching practices throughout a workshop or course while going

beyond the first-order practice of classroom teaching to the second-order meta-practice of teacher education (Murray and Male, 2005).

The MEST also stipulates that teacher education programs promote reflection and collaboration among teachers through various activities and assignments. Given the many technological tools available to promote reflection and collaboration in professional development (Avalos, 2011) and since teacher trainees are required to learn about educational technologies as part of their courses, it would seem logical that teacher educators in Korea could integrate 21st century reflective and collaborative-purpose technologies into their courses. However, to what extent this is occurring, or to what extent teacher educators feel that it is their duty to do so is not known.

Also not known is what teacher educators in Korea believe about their role in integrating 21st technologies into their teaching. Many scholars (Luehmann, 2002; Luehmann, 2008, Mumtaz, 2000; Migliorino & Maiden, 2004), assert that the beliefs and attitudes of teachers are a crucial indicator of what will eventually be brought to bear in classrooms. Pajares (1992) goes as far as to contend that "beliefs are the best indicators of the decisions individuals make throughout their lives" (p. 307). If this is so, then it seems important that the beliefs and attitudes of teacher educators be brought to light.

Purpose of the present study:

The proposed study aims to investigate ESOL teacher educators' beliefs in relation to the reflective purposes and efficacies of 21st century technologies in their praxis. The conceptual framework positions this study within a blend of David, Bagozi, and Warshaw's 1989 Technology Acceptance Model (TAM) and Azjen's 1991 Theory of Planned Behaviour (TPB), both widely used measures (Teo, 2011). The TAM is commonly employed to predict participants' acceptance of technologies, whereas the TPB provides a framework within which to explain teachers' intentions to perform a behaviour (in this case, use a technology).

Proposed methods and participants:

Because most TAM and TPB-related studies employ quantitative measures and surveys as the data collection procedures, there is a lack of the kind of rich data that can be gleaned from a qualitative study of teacher educators. Investigations of second language educators' beliefs do not necessarily lend themselves well to a priori developed questionnaires, and it can be useful to hear the voices of the educators themselves in order to gain access to their innermost thoughts and cognitions (Borg, 2011). Moreover, because beliefs and behaviours

may inform or contradict one another, it is useful to have a direct observation of the praxis of language educators in their classrooms. For these reasons, I propose a qualitative case-study approach for this study. Based on the availability of the participants, the study is likely to employ the following measures:

1. recorded oral interviews with the teacher educators
2. observations of the teacher educators' classes
3. journal entries written by the teacher educators
4. a review of artefacts related to the teacher educators' classes, including syllabi, lesson plans, and assignment instructions

Proposed participants

The proposed participants in this study are teacher educators working in a university TESOL program in a big city in the ROK. The head of the program has already given the go-ahead for a study to be conducted in the program.

Proposed reporting methods

Anonymity will be provided by not naming the program or participants in reporting this study. The study will be reported through a dissertation and possible publications. Participants will be privy to research results.

Benefits of the study

This study aims to fill a number of gaps in the literature:

1) While much is known about teachers' beliefs about pedagogy and technologies, relatively little is known about teacher educators' beliefs about these aspects of education. This is especially true for teacher educators within the field of Teaching English to Speakers of Other Languages, and especially in Asia as a whole, and Korea in particular. While countless studies have been conducted on learners and teachers, relatively little is known about teacher educators (Troyer, 1986; Bai & Etmer, 2008; Koster, Brekelmans, Korthagen, & Wubbels, 2005; Martinez, 2008) and particularly about teacher educators in the ROK. This may be due to a reluctance to pry into the lives of so-called "experts" (Hwang, 2010) or even because the teacher educators and researchers are one in the same, and are less inclined or unable to introspect. And yet, whether they like it or not, teacher educators cannot help but act as models for teachers, be it through implicit or explicit modelling (Lunenberg, Korthagen, & Swennen, 2007).

2) While most studies focused on the Theory of Planned Behaviour are quantitative survey-based research (Schwartz, 2010), the current study aims to approach the questions through a qualitative approach, using a combination of interviews, observations, journal writings, and artefact review. To round out gaps in our knowledge of teachers' beliefs and intentions using the TPB, more qualitative or mixed methods studies are needed.

3) Engaging in case-study research allows a reflective experience for the study's participants.

Participant Information Sheet

Dear Esteemed Professors of the [Central University] TESOL Faculty:

- As a busy teacher educator, do you ever find it hard to just sit down for a moment and systematically collect your reflections?
- Are you interested in sharing your thoughts about your teaching practice and beliefs with an engaged listener/ sounding board?
- Would you like to help make an important contribution to the world's body of knowledge about L2 teacher education by sharing your voice?

I am a teacher at Korea University and am about to start the research component of my doctoral dissertation (Education, Durham University, UK). I am hoping to do a qualitative case study related to teacher educator beliefs and planning. Right now, I am testing the waters as to how many teacher educators from the [Central University General-TESOL and YL-TESOL] programs may be interested in participating in a case study.

Your colleague, Ray, suggested that you might be interested in taking part in this in-depth qualitative study as a beneficial reflective exercise. If so, I would love to get in touch with you.

As a participant in this Doctoral Study, you would be required to:

1. Complete a teaching profile sheet, giving your contact details, teaching history, current teaching commitments, and other roles related to teacher education at the university;
2. Participate in a minimum of three approximately one-hour long recorded conversations, plus other informal meetings, spanning a period of one semester of teaching, from August 2013 to December 2013, in a place that is convenient for you.
3. Select and share with me feedback, testimonies, and any other materials that you judge to be of importance in articulating your beliefs as a teacher educator;
4. Share with me your syllabus, lesson plans, assignment instructions and other materials related to teacher education courses you teach at the university from August-December 2013;
5. Be prepared to have your teaching observed at least once from August - December 2013;

6. Write a minimum of six reflective journal entries from August to December 2013.
7. Comment on and verify conversation transcripts and interpretive material (optional).

This is not an action research project and there is therefore no expectation that you will engage in any action-reflection-evaluation cycle. I aim to record and interpret your self-perceptions and experiences of the challenges and changes that may occur in your role as a teacher trainer.

I can be reached at [email removed] or at [mobile phone number removed].
Thank you so incredibly much for your time!

Best wishes,
Ksan Rubadeau

Approved by Durham University's Ethics Advisory Committee

CONSENT REQUEST FORM

TITLE OF PROJECT:

An Investigation into the Beliefs of Teacher Educators

(The participant should complete the whole of this sheet himself/herself)

Please circle one

Have you read the Participant Information Sheet? YES / NO

Have you had an opportunity to ask questions and to discuss the study? YES / NO

Have you received satisfactory answers to all of your questions? YES / NO

Have you received enough information about the study? YES / NO

Who have you spoken to? Dr/Mr/Mrs/Ms/Prof. .....

Do you consent to participate in the study? YES/NO

Do you consent to have interviews recorded? YES/NO

Do you consent to allow recorded interviews to be transcribed and written up in papers relating to this study? YES/NO

Do you consent to allow your classes to be observed? YES/NO

Do you understand that you are free to withdraw from the study:

* at any time and
* without having to give a reason for withdrawing and
* without affecting your position in the university? YES / NO

Signed .....……..... **Date** .....

(NAME IN BLOCK LETTERS)

.....…….....

Approved by Durham University's Ethics Advisory Committee

APPENDIX F: EXCERPT FROM RESEARCHER'S LOG

Oct 13, 2013, Ksan's Research Log

- Just finished Ben's second interview transcription-- just have to do Luke's now. Have not been able to get Jeff for an interview, so will email now
- Ben, Luke, and Jeff all presented at KOTESOL, but I had work so couldn't go. Am going to write them now to ask them about it.
- Interesting note about Ben and Ray-- both seem to feel like Ss need to learn a new tech form that the rest of the world is using-- Ben mentioned in this last interview that he doesn't accept hwp files cause he doesn't know the shortcuts, and that he wants trainees on Google products and not Naver because he wants them to know what the rest of the world knows-- it seemed he had already been through this debate before as he mentioned talk for days about the issue of whether trainers should learn the prevalent tech of the society they're in
- parallel between NEST trainers not learning local tech and not learning local language. Is the forcing of learning Google products like the forcing of learning English in the first place?
- Saw that Ray posted about tech on Google+.

APPENDIX G: DATA COLLECTION ITEMS AND RATIONALE FOR USE

Reflection #1 (via email): elicitation on thoughts about the upcoming semester:
In July, 2013, I emailed participants to ask about their thoughts about the upcoming semester. One participant, Luke, asked if I might specify my needs to aid with the reflection, so I used these three questions for elicitation:

1) How are you feeling about this upcoming semester? Is there anything you're particularly excited about? Is there anything that you're nervous about?
2) Has your syllabus changed at all since the last time you taught this course? Why or why not?
3) Do you have any questions about your own planning process that have been floating around in your mind? (Is there anything you were hoping to discuss with another person?)

<u>Interview #1: (August)</u>

The first interview was based on responses to the Reflection #1 task, and from any information provided by participants in separate emails after the first reflection. During Interview #1, I asked participants more about their upcoming semester and changes that were happening. I worked on gaining trust during the first interview by sticking to slightly more general topics about each participant's work and CV, and also aimed to get access to program materials. After Interview #1, I emailed participants to ask about further details on some of the issues that had come up in the interview, and to remind them about any files, resources, or materials they had mentioned during the interview. Going into Interview #1, I started off with a general question (e.g., so how are things going?), building up to bullet points based on each participant's earlier reflection. During the conversation, I attempted to blend in as naturally as possible the bullet points to elicit information if it had not come up already in the conversation, but then would point out that this was a reference to the reflection. Subsequent interviews built on follow-up reactions to what participants had said.

I also let participants know to whom else I was talking in the program, and which files/information I had permission from the coordinators to see, in order to limit the perceived or real risk that may reveal to me something confidential or potentially damaging.

Example questions from Interview #1:

- "You mentioned connecting on an individual level. How is that achieved" (Jeff-Interview1).
- "So, how's classes going? (Ray-Interview1)
- "You mentioned that the [Cross-cultural Communication] course is your baby. How did it become your baby?" (Gina-Interview1)
- "So you said you enjoyed being back in the classroom, after being the 'bad guy.'" (Ben-Interview1)
- "Let me ask you about your feedback. One thing you were wondering was about error correction. So actually this is related a little bit to the writing. How much linguistic treatment are you focusing on? (Luke-Interview-1).
-

Observation #1/ Post-Observation Interview (August, 2013)

When time allowed, observations (of one or two-hour lessons) were followed immediately by a post-observation interview. Shorter post-observation interviews were not audio recorded. The trainers had notified trainees beforehand that I would be coming to the class, and I was introduced to the class at either the beginning or end of each observation. Trainees were informed that I was there to observe the trainers' actions and not the trainees' behaviours. In order to avoid the ethical and consensual issues involved in filming a class of trainees, who were not the focus of this study, I used no video or audio equipment during observations. Instead, I sat in the back of the class and took pen and paper notes as unobtrusively as possible. During a break or after the lesson, I occasionally took photographs of the board-work or classroom, using the camera in my LG Optimus 2 smartphone (in doing so, I would get closer to the board, and reserved this for times when trainees were also taking pictures of board-work).

While the conceptual framework and research questions of the study guided my focus during classroom observations (Merriam, 1998), with an emphasis on technologies used during lessons, I eschewed a set blocked-out observation schedule, as I did not want to place undue limits on what I hoped would be a more holistic observation of classroom behaviours. However, during all observations, I did take written notes on classroom set-up, the number of trainees, and time markers, which I retyped soon after observation days, adding memos. At times, I added questions to explore after the limited-time observations.

Reflection #2: (questions emailed to participants in the first week of September, 2013, and suggested as a possible prompt if needed:

"If you wanted something to reflect about, I was wondering if you'd like to complete these two sentences about your teaching:

1) I used to _____, but now I _____.
2) I didn't use to _____, but now I _____."

Interview #2 (September or October)

For the second round, I went in to each interview with bullet point prompts prepared based on prior interviews, reflections, and/or observations. Interview #2 elicitation techniques progressed in a similar fashion to those of Interview #1; however, this time I also referred to other elements of the program. Importantly, in Interview #2, I revealed to all participants that the research was in fact related to their cognitions and practices related to 21st-century technologies.

Elicitation about Standards for Teacher Educators (Oct 16, 2013)

I let the teacher participants know that I would be eliciting their opinions on teacher trainer standards (ATE, 2008). On Oct 16, 2013, I sent the five key TE participants the following email:

"I was wondering if you had time for some reflection writing this week? The document in this link deals with Standards for Teacher Educators. My questions for you:

Link: http://www.ate1.org/pubs/uploads/tchredstds0308.pdf

1) Do you think these are the right categories for standards for teacher educators at Central University? Is anything missing or extraneous?

2) Where do you think you stand with these standards? Are there any areas you consider your biggest strengths? / Any areas you think you particularly need to work on?"

Some of the participants responded via email, while others went through their thoughts on the survey when we met in a subsequent interview.

Interview #3 and Observation #4 (November/December 2013)

These interviews and observations followed a similar pattern the previous interviews and observations; however, for some of the participants, we talked about items from the ATE.

Interview #4 (December, 2013)

Interview #4 involved general questions about the participants work, and was used to explain what would happen next with the research, and to give small thank you gifts and cards. However, the primary purpose of the interview was to obtain information from the "TPACK Survey" and the "TechTools Survey," with the exception of Jeff, who was unable to complete the TechTools Survey.

The TPACK survey was adapted from Schmidt et al.'s (March 3, 2009), Version 3, "Survey of Preservice Teachers' Knowledge of Teaching and Technology." The survey contains items divided according to the separate TPACK constructs. It also investigates background experiences related to TPACK and investigates

teaching/technology models followed by the participants. At the end of the survey are items eliciting demographic and background information about the participants.

I used it the survey as an oral elicitation tool during an interview so that they might be able to qualify their answers with explanations. This was partly based on my own frustrating experiences as a respondent of Likert scale surveys. With no room to qualify my answers, I often feel as a respondent deprived of opportunities to explain myself, and have worried about being misrepresented. Any item to which a respondent "strongly agrees" may involve caveats and require elaboration, especially when nominal items are considered numerically equidistant. Another reason to use the survey during an interview was as a catalyst to delve further into participants' experience, gaining rich qualitative data.

I chose to use this instrument during the final interview and not closer to the beginning of the research data collection cycle to avoid veering participants' answers unnaturally toward a discussion of TPACK and cloud their subsequent responses. Finally, the survey served as a triangulation device, to confirm information that participants had mentioned previously in the study.

Additional Documents

In addition to the interviews, observations, and surveys, I retrieved data from:

1) photographs of participants' offices, desks, materials, and buildings
2) participants' curriculum vitae
3) participants' blogs, webinars, presentation slides, and discussion posts on educational blogs and social media which? What did you post? Where?
4) Central University TESOL Program course materials, including syllabi, teachers' notes, lesson plans, and student materials
5) Research field notes, comprising questions to follow up on, contextual insights
6) Program opening ceremony documents and relevant field notes
7) Central University TESOL Program PR materials

These materials were used at all stages of data collection and after in order to inform interviews and observations. I employed them to guide my understanding of how the lessons fit into the bigger picture of the TESOL program, how the TESOL program and individual participants presented their professional skills to trainees and to outsiders, how lessons and materials were constructed and shared, and how participants discussed technologies and their practice online. These helped form the basis of more probing questions about what participants had said during interviews and reflections. They were also used to corroborate information brought up during reflections and interviews, thereby triangulating findings. For example, when Ray discussed his feelings about a webinar he had done on how to teach online, I was able to watch the webinar directly to find both confirmatory and contradictory evidence of the events he had claimed transpired.

APPENDIX H: TPACK SURVEY (ADAPTED FROM SCHMIDT ET AL., 2009)

Technology is a broad concept that can mean a lot of different things. For the purpose of this questionnaire, technology is referring to digital technology/technologies. That is, the digital tools we use such as computers, laptops, iPods, handhelds, interactive whiteboards, software programs, etc. Please answer all of the questions and if you are uncertain of or neutral about your response you may always select "Neither Agree or Disagree."

Question	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
1. I know how to solve my own technical problems.					
2. I can learn technology easily.					
3. I keep up with important new technologies.					
4. I frequently play around with technology.					
5. I know about a lot of different technologies.					
6. I have the technical skills I need to use technology.					
7. I have had sufficient opportunities to work with different technologies.					
8. I have sufficient knowledge about the subjects I teach.					
9. I can think of things from a TESOL approach.					
10. I have various ways and strategies of developing my understanding of the subjects					

I teach.					
11. I know how to assess student performance in a classroom.					
12. I can adapt my teaching based-upon what students currently understand or do not understand.					
13. I can adapt my teaching style to different learners.					
14. I can assess student learning in multiple ways.					
15. I can use a wide range of teaching approaches in a classroom setting (collaborative learning, direct instruction, inquiry learning, problem/project based learning etc.).					
16. I am familiar with common student understandings and misconceptions.					
17. I know how to organize and maintain classroom management.					
18. I know how to select effective teaching approaches to guide student thinking and learning in mathematics.					
19. I know how to select effective teaching approaches to guide					

student thinking and learning in the subject matter.					
20. I know about technologies that I can use for understanding and doing TESOL					
21. I can choose technologies that enhance the teaching approaches for a lesson.					
22. I can choose technologies that enhance students' learning for a lesson.					
23. My teacher education or professional development have caused me to think more deeply about how technology could influence the teaching approaches I use in my classroom.					
24. I am thinking critically about how to use technology in my classroom.					
25. I can adapt the use of the technologies that I am learning about to different teaching activities.					
26. I can teach lessons that appropriately combine TESOL, technologies and teaching approaches.					
27. I can select technologies to use in my classroom that enhance what I teach, how I teach and what students					

learn.					
28. I can use strategies that combine content, technologies and teaching approaches that I learned about in my own professional development my classroom.					
29. I can provide leadership in helping others to coordinate the use of content, technologies and teaching approaches at my school and/or district.					
30. I can choose technologies that enhance the content for a lesson.					
31. The teaching models or colleagues I follow appropriately model combining content, technologies and teaching approaches in their teaching.					

Questions	25% or less	26%-50%	51%-75%	76%-100%
In general, approximately what percentage of your teacher education professors have provided an effective model of combining content, technologies and teaching approaches in their teaching?				
In general, approximately what percentage of your professors outside of teacher education have provided an effective model of combining content, technologies				

and teaching approaches in their teaching?				
In general, approximately what percentage of your colleagues have provided an effective model of combining content, technologies and teaching approaches in their teaching?				

35. Describe a specific episode where someone you observed effectively demonstrated or modeled combining content, technologies and teaching approaches in a classroom lesson. Please include in your description what content was being taught, what technology was used, and what teaching approach(es) was implemented.

36. Describe a specific episode where you effectively demonstrated or modeled combining content, technologies and teaching approaches in a classroom lesson. Please include in your description what content you taught, what technology you used, and what teaching approach(es) you implemented.

APPENDIX I: SURVEY ON 33 DIGITAL SKILLS (ADAPTED FROM "THE EDTECH TEAM, EDUCATORS TECHNOLOGY WEBSITE)

(Accessed Nov 8, 2013 from <http://www.educatorstechnology.com/2012/06/33-digital-skills-every-21st-century.html>)

33 Digital Skills Every Teacher Should Have: The 21st century teacher should be able to:

http://www.educatorstechnology.com/2012/06/33-digital-skills-every-21st-century.html

Tool	I can	I should be able to	My trainees learned how to	My trainees should be able to
1. Create and edit digital audio				
2. Use social bookmarking to share resources with and between learner				
3. Use blogs and wikis to create online platforms for students				
4. Exploit digital images for classroom use				
5. Use video content to engage students				
6. Use infographics to visually stimulate students				
7. Use social networking sites to connect with colleagues and grow professionally				

8. Create and deliver asynchronous presentations and training sessions				
9. Compile a digital e-portfolio for their own development				
10. Have a knowledge about online security				
11. Be able to detect plagiarized work in students assignments				
12. Create screen capture videos and tutorials				
13. Curate web content for classroom learning				
14. Use and provide students with task management tools to organize their work and plan their learning				
15. Use polling software to create a real-time survey in class				
16. Understand issues related to copyright and fair use of online materials				
17. Exploit computer games for pedagogical purposes				
18. Use digital assessment tools to create quizzes				
19. Use collaborative tools for text construction and editing				
20. Find and evaluate authentic web based content				

21. Use mobile devices like tablets				
22. Identify online resources that are safe for student browsing				
23. Use digital tools for time management purposes				
24. Learn about the different ways to use YouTube in your classroom				
25. Use note-taking tools to share interesting content with your students				
26. Annotate web pages and highlight parts of text to share with your class				
27. Use online graphic organizers and printables				
28. Use online sticky notes to capture interesting ideas				
29. Use screen casting tools to create and share tutorials				
30. Exploit group text messaging tools for collaborative project work				
31. Conduct an effective search query with the minimum time possible				
32. Conduct a research paper using digital tools				
33. Use file sharing tools to share docs and files with students online				

Missing from the list?

List of the devices and techtools you have acquired this semester (including new gadgets and new programs you've tried)

How you find out about new techtools

Why you use 21st century technologies in your practice

Ages (during semester)

# of semesters teaching in program (starting teaching)

Prior work as a teacher educator

Prior # of years working as an ELT teacher/ Other kind of teacher/ Administrator in education or ELT

Are you an early tech adopter? Later adopter? Somewhere in the middle?

Are you a "digital native"? Are your trainees?

Do you think you have a student-centred approach to ELT?

Do you think your trainees should take a student-centred approach to ELT? Why or why not?

Do you think collaborative learning is important? Why or why not?

Social media you use in your personal life

Social media you use in your work life

APPENDIX J: TIMELINE REGARDING THE DEVELOPMENT OF THE CENTRAL UNIVERSITY TESOL BLENDED LEARNING PROGRAM

Date 2013	Description	Notes about Participant Reactions
Aug 6	Gina says she learned on the first day of meetings that they're starting a BLP for the next semester, noting that Ray asked if she'd help make one. There had been investigations of using a commercial program that Gina felt was inadequate. Gina says it seemed like they were aiming to make a course that would be half online and half on Saturdays, in order to get more people.	Gina seemed tentative about what the BLP involved. I asked her about the extra workload and she noted that Dr. Cho typically gave faculty stipends for content and course development. But she noted that it was "still extra work whether we want it or not."
Aug 8	Luke tells me that it is going to be an asynchronous live chat where the teacher educators are live on camera with trainees all over Korea.	Luke is worried about the technology and the learning curve involved in having many screens open and talking to trainees

		simultaneously while being "on top of [his] game" (AI1)
Sep 19	The faculty try connecting via Google Hangout to determine its potential as a platform for the BLP. (I determine this date from later discussions with participants).	
Sep 24	Gina reveals to me that it is her last semester at Central University. I note that she has been working on the BLP knowing that she would not be teaching it. She says the project is fun and exciting and that she wants to provide input with "all the Cross-cultural Communication content that I really want." She also says that for "selfish reasons" she also just wants to learn how to do it as a skill to have in repertoire for the future.	Gina is interested in learning about the application. She also expresses a desire to have some control in the content of the Cross-cultural Communication course, although she notes that Luke will be capable with it.
Sep 24	Gina tells me that the faculty tried "playing around" with Google Hangouts, using multiple-person video as possibility for a BLP. Gina experienced difficulties getting into the Hangout at first. After that, people tried sharing Powerpoint slides and documents. She tells me that the next stage is to work out a list of possible platforms from the education and business world. The faculty and Dr. Cho are working on this. Then they will beta test them. In the meantime the faculty will develop the content of the three key courses to determine what must be online and	Gina displays pedagogical concerns about how to best employ the online program. Gina reveals some tension between Dr. Cho

	what can be in person. Gina says she feels that some of the interactive content should be in the classroom. She acknowledges the workload and notes that coordinators had approached Dr. Cho for increased compensation. She notes that at the moment, monetary compensation is "just a token." She says that by developing new programs, the faculty were doing work outside of their teaching contracts, and that though they were good it, they "could also be hired as curriculum designers or program designers." I note that it seems that teachers understand how much work the BLP will entail, but less so with administrators. Gina responded that whether or not administration is aware of the work, "it's something they're pushing."	and the faculty in new roles they are being asked to play in adapting face-to-face courses for a BLP. Faculty have been informally talking in the hallways about demanding payment for things that were not going to be paid for, and then decide as a group to "go down" (to Dr. Cho's office).
Sep 27	Ray indicates that just the day before he was "finally" able to get from his "boss" (Dr. Cho) password access for faculty to try out one of the commercial virtual learning environments. He said it had taken about a month of bureaucratic procedures to get the credit card and funding. He noted that faculty were expected to have a course that looked perfect by February, when they had a vacation from the end of December to January, that the program was not funded, and that faculty were getting paid very little to the development. He told me that there had been meetings earlier in the semester to discuss how to adapt the curricula to an online setting, but that as time	Ray displays feelings of conflict with Dr. Cho, noting that he doesn't feel she understands the breadth and depth of what is entailed for faculty in developing an online course.

	went by, it was necessary for the faculty to "light a fire" under administration. He indicated he felt Dr. Cho did not entirely understand the workings of a BLP Ray describes going to Dr. Cho's office to discuss options for an LMS. He told her then that the faculty had attempted a Google Hangout and that he had determined it was not stable enough. He and Dr. Cho looked at a few commercial options, and it became clear that a credit card would be required. Ray says at that point he made a "unilateral" decision to tell her that since faculty were on one-year contracts that it was not appropriate for them to be using their own credit cards—that it should be an institutional card, or least not one of the faculty's. Ray says that the conversation seemed to have taken Dr. Cho by surprise, and that she suggested that the faculty simply use their own cards to start. Ray's words: "Doc, we're not going to do that. I'm sorry, it's not, we're not, it's not the arrangement we had. We pursued this interest for you…and there is a university credit card" (RI2). He says he explained to Dr. Cho that the site needed to look good from the beginning. He says he also gave her dates for a big e-learning conference. Ray said that he told her they could not plan the online curriculum until they knew the technology they would be using.	
Sep 27	Ray explains the planned workings of the BLP: replace one Wednesday four-hour class from the Wed/Saturday class would be "live online." A couple of offices would be outfitted, and a "few" of the teacher educators would probably have technology at home they can use. Ray says he has the impression that Dr. Cho thinks that the faculty can simply "copy and files" and "lecture online	

	instead of class." He notes: "I don't think she's even been into one of our classrooms for years, so. She, she still thinks we lecture." I ask Ray if he has done some online teaching. He says, "Not, honestly, not, not live." He says he thinks the issue of homework itself is something to consider, and the Blended Learning group should be "going off watching Youtube videos and reading online."	
Sep 27	Ray and I discuss the MOOC he is taking on the principles of online teaching. He says its lecture style is an example of what he does not want to be doing. Ray says, "And that's why I want my boss to be in front of the ball instead of behind the ball so that we can be where we always are, [K: Right] which is ahead of the ball." He says that with the waning time left to plan, "pretty soon I'm going to have to prepare for the possibility that" the BLP will not happen according to Dr. Cho's planned timeline.	Ray displays a desire to maintain what he deems is the integrity of the Central University TESOL Program.
Oct 9	The BLP faculty have a two-hour meeting to test one of the commercial platforms (information gleaned from interview with Luke).	
Oct 10	Luke says the BLP is "going to be a mess" and will be "terrible" the first semester, as no matter how well prepared the faculty are, there will be things they will not be able to fix and that faculty would be expected to do things they were not trained to do. He imagines the biggest issue will be that trainees will be in their homes having problems and that the teacher educators will not know what to do. He notes that the TEs are not trained IT specialists.	Luke is apprehensive about the planning of the BLP. He feels like faculty are working too hard without knowing what they are doing. He feels

	He notes that in the meeting to test a platform, faculty noted that they needed someone on staff trained to handle technical problems, and that the person would need to be present when the online classes were happening. He says that Ray said he would look into it, but that it was a budget issue. Luke tells me he is doubtful about any budget issue as there are eight staff members downstairs and "I don't know what they do. I mean they're supposed to support us, but they, we never really ask them to do anything." Luke notes that everyone in the General TESOL program "spent two hours this morning in front of our computer like 'Can you hear me? Can you guys hear me? Can you guys see this? Oh, what happened?' You know, for the first thirty minutes I didn't have any audio. And like I know that we need to like kind of figure things out, but, it'd be much more effective if someone was like hey, I took it upon myself to figure everything out. Let me tell it, let me tell you how to do it in thirty minutes." Luke says that while he does not want to push off responsibility, he feels it is the coordinator's role to train everyone. Luke says he feels time is being wasted. He notes that there have been four or five meetings that "you know about two hours just about this blended learning, and we've gotten nowhere". Luke is frustrated by the number of meetings without strict agendas where faculty try things out on a platform. Luke says he supposes Ray is in charge, as Ray is the one	he is working beyond the job he was hired to do, and thinks that the program needs someone with blended learning IT skills to help.

	who has called the meeting. “So, I don't know who else would be. No one else knows that they're doing.” He says “it's frustrating because, it's, that's not my job. You know what I mean? That's not in the contract, I wasn't hired to do that. And you know Ray says, ‘well you know that's the way everything's going, you know, gotta, gotta step it up.’ Well, then prepare us for it, you know? That, that's all we need is like, we just need training, and we need someone to assist us when we don't know what to do.”	
Oct 20	Luke tells me that Dr. Cho was being rigid in her “refusal” to let the program be asynchronous. He says if it were an asynchronous program, the faculty would have “a lot more freedom” and could “develop things, giving more creative and interesting tasks that students can do alone or together. We can make them, okay you, this is your partner, you Skype with them. Or you Google Hangout with them. And then, you know if you have any problems, we'll meet with you on Saturday, but it has, but she wants it to be we're in front of a computer, all the students are in front of their computers, and we're all interacting. She wants it to be exactly like a classroom, but I think given the platform, it's, the technology's not quite there yet. There is a lot of interaction we can do, but when more than two people try to talk, it's like "Wh, wh, I can't" you know it just gets messy.” Luke is concerned about issues like timing, wondering what will happen if it takes fifteen minutes to get a class started—would the class then go later? What would happen to trainees’ schedules? What if it was an hour? I asked him what Plan B was being developed. He said “There's Plan A and there's figure out how to make Plan A work.” He said that if it was a case of one-on-one learning,	Luke feels asynchronous would be less restrictive than a synchronous program. He worries about the pedagogical implications of logistical problems.

	"sign me up," but that the logistics of handling a class of people on different computers and in different locations at the same time was worrisome.	
Oct 20	Luke says he thinks that there is a 90% chance that the BLP will be piloted with at least a small group of trainees the following semester. But he says that at that point it is hard to "think about it enough to get frustrated." He says he cannot even imagine what the finished product is going to look like at that point. I point out that vacation is fast approaching, and he says the decision could come during vacation and that faculty would get emails telling them to get the first lessons ready.	Luke thinks that the BLP may be piloted the following semester, and that there is a possibility that faculty might have to work on it during their vacations.
Oct 21	Ray tells Dr. Cho that the planning is too much work.	
Oct 22	The faculty try out synchronous video chat, using some former members of the International Students class. (gleaned from an interview with Ray).	
Oct 22	Jeff says he thinks the BLP is a good idea, but that the "logistics of it is confusing" to him, as he does not know how to adapt his second language acquisition course to it. However, he says he has been thinking about how best to do that. He notes, that they are still looking "for the right kind of platform to do everything." He notes that they have been finding a "limit on the number of cameras that can be active at the same time. So uh also the, the more people that are in there, the bandwith gets screwed up" He says that a few teacher educators have been working with some former International Class students to try to practice.	Jeff is considering how to best adapt a Second Language Acquisition course to a blended learning format. He says the logistics with the cameras are a problem.
Oct 22	Jeff says that due to the logistics, he believes much of it will be audio and group work, having a teacher educator	Jeff feels it is important that

	monitor trainees while they are doing group work and then call them back: “So it will be like a mixture of chatting, uh, like text chat, and audio, some video.” He says that as far as he knows at that point, it will be piloted the following semester with just one group, and the original face-to-face evening program would be run simultaneously. Jeff says he believes the decision to have a synchronous program is a good one “the kind of theme of the course is interaction. So we have got to provide that even if, you know even if it's online.” I ask him if he thinks asynchronous doesn't give the opportunity for interaction, and he replies, “Well not, uh, not live.” I point out that there could still be participant-to-participant live online interaction, and Jeff acknowledges that this is “possible. But you know, the whole thing, you know we do is that they're, they're, fifty percent of the course is making them better English users. [K Mmm hmm] And, to do that they need to be talking to uh, talking to each other in English about about the things that we set up for them.” Jeff notes that with no way to monitor their language use, the teacher educator would not be able to ensure that trainees were speaking in English.	the experience be synchronous, in part because it will enable the teacher educators to monitor trainees’ language use.
Oct 22	I ask Jeff if he had been worried about how to do blended learning. He replies, “Um, not really. I mean I'm... I always, uh, you know pay attention to wh, what's going on, um, with technology and education. And I figure whatever, whatever the platform is I'm sure I can figure it out and uh, yeah, so I, I, I don't know, I consider myself pretty proficient with the technology and everything. So, I, when part of me is like when I have to, when it's here, you know, I'll do it and I know that you know planning a lot now just would be a waste of time [Mm hmm] because you know, depending on the platform and that, it can	Jeff indicates he feels fairly confident about being about to teach in a BLP and is just waiting for the platform to be decided upon before he moves forward with

	change the way we want to present the material. So... just wait. Wait and see" He says he know he will teach the SLA course and has a plan for the material, but that he will wait to see what the platform is before he "really get[s] into it." I ask Jeff is there is a deadline to decide on the platform, and he admits that he does not know, but "soon." I point out that there are only fifty days until the vacation, and ask if it they had been asked to work on things during their vacations before. Jeff says "Yeah. Yeah. Often" and that "sometimes there's no, no choice," as workload demands for revamps to new courses sometimes necessitated it. He admitted, however, that CU did not require teacher educators to be in physical meetings during vacations.	planning. Jeff is confident he will be teaching the Second Language Acquisition course, and has started planning materials for a blended format. Jeff admits that with the approaching vacation it may be necessary to work on the BLP during the holidays.
Nov 1	Ray tells me that there has been no settling on a platform. He says, "I've also had to put my foot down on my boss and said, it's for me too much work. You got to pay us to stay here and work over the vacation and if we do so over the next semester." He said he agreed to do it as vacation work. Ray says that Dr. Cho was being more understanding. He says, "I kept reassuring her that I wasn't trying to get more money out of her or something just to hold her hostage or anything, but I really did feel that she underestimated the time that was going to be necessary to put this together because she hasn't got quite as much information about the whole start of the process."	Ray feels that Dr. Cho had started to seem more understanding of the amount of work involved to do the BLP. However, he says that she has culturally-motivated expectations of boss-employee relations

	Rays says Dr. Cho had suggested that the teacher educators simply would not have to teach the general English classes for first year students. Ray pointed out to Dr. Cho that the first-year classes were paid work, so that she was essentially asking them to take a pay cut, or to "do more work and not get paid for it." He says he told her that the faculty would not be happy about it. He says at that point, Dr. Cho pointed out that people were taking time to do PhDs, and that he defended the practice, saying, "they can't really sacrifice on those. It's a professional, relevant thing, they have to be able to do something alongside their work. All of this, well you know, sort of reveals the cultural expectations, and she's the boss and when she tells people to work harder for a while they're going to work harder for a while. They're going to do whatever she tells them to do."	indicated by her suggestion of people working harder for less payment.
Nov 1	Ray says that Dr. Cho discussed the idea of getting someone from the outside to help set up the program, which Ray says he encouraged her to do if she was not able to pay faculty extra and reduce their hours. He says he knows she approached Ben about it and that Ben was going to give the same advice. Ray said that he was certain that part of Ben's hiring was due to Ben's tech-related background. However, Ray says he believes Ben is too new to take over the entire thing. Ray says that what it came down to was Dr. Cho finding the "most cost effective and time efficient way to do this. And again I'm thinking tonight I am the most cost effective time efficient way to do this cos' everything else is going	Ray says that Dr. Cho has been talking about getting someone from the outside to come in and work on the BLP. There is talk about Ben in consultations with Dr. Cho. However, Ray says at this point he is happy to

	to cost them another job. Ray then concedes that he has "just got to let her come to her decision" and says he is "quite happy not having to worry about it, you know." He says he is still doing the reading for the two MOOC courses on online teaching to keep himself "up-to-date" but that the pressure is off "in terms of, actually of trying to put it together for nothing with a bunch of grumbling." Ray says he think the faculty are happy to work with him because he urges and praises them the right way and efficient. He says that they were working on the blended learning in the name of their own professional development for quite a while, and that's been great. He said that everyone had kind of found their professional love, and that "when you throw something in like this it takes away from" other interests such as Gina's coding and robots and Luke and Jeff's PhDs. He says, "Sure we could all benefit from learning to convert courses to online and teach online, but again there has to be a way that makes us feel respected and adjusted by that…"	wash his hands of it. He indicates that the faculty were interested in professional development, but that it had to be done in a way that made them feel respected.
Nov 1	Ray explains the commercial option that they had been exploring with the former International Class trainees. He says that it, like others, are rather "short on video technology" and that "anytime you put a few cameras together uhm you take away from it's like sharing white boards and spaces and all that." He says that there is a learning curve and that for trainees, it would take an hour or two, and probably would require a few log-ins to have it work smoothly.	Ray feels that there are no good available platforms that cover what Dr. Cho wants—synchronous, live, multiple programs. It looks like voice

	I note that he had posted online about using voice only in online work. Ray says that "it's the only workable option" so it seems like there is consideration that the video option may be scrapped for the BLP. We discuss the language learning dynamic difference from a voice only option. Ray says there are "definitely benefits" from encouraging chat and chat questions among trainees, with voice added. He talks about chat literacies and spelling, and how those present attractive options from a language perspective. However, he says the issue is how to maximize synchronous interactivity. He says it is a real worry time-wise for him in the planning, as converting Powerpoint slides and talking about them would be easy, "but what's the point of that?" He says he looks forward to the challenge, but that the technology is not there to do "synchronous live video conferencing with more than four to five students at a time." He says he used to complain about Google Hangouts getting "slow and crazy after about five or six people were logged in if you wanted to do anything real with it and a couple of their systems actually have an imposed limit of six" trainees. I ask Ray if he considers a synchronous program the best way to go, and he says "Ideally, no." However, he admits that the Central University TESOL program has a "reputation for much more," and that teacher educators in the program get much more "quality language output" out of trainees than he thinks happens in other programs. He says that this is due to the amount of interactivity in the program, which he knows is something that Dr. Cho does not want to sacrifice when she puts four out of	only options are being considered. Ray says he does not feel that an online synchronous platform is ideal for language learning opportunities, but that he understands why from an institutional/marketing perspective Dr. Cho would think that prospective trainees would want to know that the program offered the same kind of teacher-trainee interactivity for a set number of hours.

	twelve hours online. Ray says he agrees with Dr. Cho's position on that, which is why he feels that maximizing the chat and audio components was "necessary for this program and that would give us the same, that would maintain our edge in that area." Ideally, Ray says, he does not feel that online learning is suited to the trainees, and that a better way of going about it would be to "encourage this guys to do group pair work task and group task in their own time during the week to the tune of about four hours or maybe three hours and then get together for an hour just to show off each other's work or put it on a website coming out of it one hour or something that would probably get the content across better more effectively." He acknowledges that trainees would be doing this in Korean, and "they'd be paying for an undetermined amount of hours." Ray says that Dr. Cho is "probably right about Korean assumptions about that they're going to be getting the same quality thing." He says that language promotion could work with a couple of hours online, or where trainees are "actively, or theoretically actively" listening in English and, and typing away in English. He says that it is theoretically possible that trainees could simply be backchanneling, or using Kakao talk chat app to put everything a teacher educator was saying into a translating app.	
Nov 6	Luke says that at that point he was not sure what was happening with the BLP.	Luke says he is not sure how the program is developing.
Nov	Gina tells me that the time when the faculty explicitly	Gina says that

8	discussed technology integration and collaboration was during the meetings planning the BLP.	the Blended Learning meetings afforded some discussions among faculty about technology integration.
Nov 8	Gina says that the BLP may not be happening. She mentions there had been a lot of talks among faculty about the workload and about not getting paid for it.	Gina discusses the heavy workload and lack of payment.
Nov 14	Ben meets with Dr. Cho to discuss his possible involvement in the program. (Gleaned from Nov 15 interview with Ben)	
Nov 15	Ben says that he volunteered to get involved in the BLP. He sat down for a meeting with Dr. Cho, who acknowledged that the timeline for starting the program might be delayed. Ben said that they discussed some experiments. I asked Ben if the chance came for him to be blended learning "guru" if that would suit him. He said it would, "for-for just the whole process, (K: mmhmm) you know. Um, the idea, blended learning very quickly became flipped classes, and that sort of changed back to blended learning. And then there's this question of whether it's live or whether you're, you know, whether you're just archiving footage and students are doing it on demand. And then is that flipped or is that blended…" Ben tells me that he had taken several blended learning courses, and that "a good portion of my MA was-was blended." He adds that he had recently "done the occasional, uh, MOOC."	Ben has experience in blended learning as a student. He volunteers his involvement in the program. He has an expanded definition of blended learning. He is not convinced that synchronous video is the most efficacious method of delivery,

	He tells me of his definitions of blended learning, explaining some examples: "Google does quite a bit. Um, and Google has, uh, just launched connected classrooms. Um, and they've also got these Helpouts. You know Google Hangouts, and there are Helpouts where you can sort of dial in to someone, an expert, and they will talk you through something. Um, and also, um, the Amazon Kindle, that has gone this way for tech support. I guess it's tech support really, but, you know, you push a button and a guy pops up, a live person pops up and sort of walks you through how to use your Kindle basically. Um, I-I would call that blended learning, as opposed to sort of phone support, because there's actually some hands on there, albeit for 30 seconds, where it helps you find the settings button or something." He adds that he is not "convinced as to the-the efficacy" of Dr. Cho's idea of a synchronous program. He add, "Um, I think most of the students that want this kind of thing, want to do on their own terms. Certainly my experience was, you know, I'm not doing class at 3 o'clock with everyone else, because I've got a job, I'm doing something. But I'd quite like to read the notes, watch the video, you know, after work, after whatever else I've got on going on that has caused me to do a blended program, you know. The only-the only-the only, the catch there is, um, the-the distance things, that there are people who are able to do their class at 3 o'clock in the afternoon, but can't make it to [the big city]." I ask Ben what his next step would be in figuring out what to do with the BLP. He replies that he would go to the internet first. He add, "the first thing, um, that sort of is-is	although he acknowledges that it has a use for distance learners. Ben says he would consider content first. After that, he would consider the delivery mode and practicalities. Ben says that instructors needed to be cajoled, as he perceived negativity around the program. He says the practicalities are a concern and that there needs to be training.

	playing back in my mind is, um, the content. We call it the content. Reasonably covered the technologies, cool as I can be with technology. Um, it's always break, doesn't work properly. But, um, the actual delivery, so is it enough to stick a camera in the back of a room and tape a teacher delivering a class to live people, or does the teacher need to sit in front of a computer and just be teacher-computer cloud? Um, and what practical issues are there with that in terms of things like writing on a whiteboard, (K: mmhmmh) you know. If there's a camera at the back of the classroom, how well is it going to pick up writing on a white board? Is there an analogue or teacher-computer cloud? I know there is - how easy and effective is that to use? So the-the practical delivery aspects are my concern. The content arguably is there,(K: mmhmm) needs a little bit of adaptation for the medium, but it's there. The instructors need to be cajoled a little, because I think there is a general sort of negativity going on about the whole thing." I ask him why he feels there is negativity. He replies "just the amount of work that was perceived that it would take. Not that they said "No, we're not doing it." Um, you know, maybe some of that negativity gets lifted a bit and they're able to focus in on just delivering. Um, but there's still going to need to be training. And I'm thinking of those practical things, especially, you know, it's one thing to deliver a class in person, it's another thing to make sure that you're always on camera, for instance."	
Nov 15	I ask Ben what he knows about being on camera. He replies, "You know, I have skimmed a couple of articles on-on that, and it's-it's more about, um, brings be back to, um, sort or glee club and theatre sort of days, you know, making sure you're always in line of sight, and you know	Ben feels that an important aspect of researching how to start a new program is

	what's upstaging people and things, those sorts of practical things, are what are playing on my mind now." Ben says that when he is searching for information on blended learning, he uses the word "experience" in his research, 'to get comment from people who have actually done it. (K: Right) Um, because a lot of, uh, you know there is a lot of long-winded academic-y articles out there, but blended learning, it's no, no, no. But very (K: I've read some of those). Yeah, and-and-and I tell you what, actual teachers don't have time for long-winded writing of articles and what not, because they're teaching. Um, what they do do though, is they do a lot of blog posting, that's which I've found useful."	to research other people's actual experiences rather than looking at more academic articles.
Nov 20	I ask Dr. Cho about the BLP. She says they are still looking for a tool, and have tried out a few different software programs. She says the don't just want to provide a regular format with online content, but are "looking for a way to transfer dynamic format to online teaching." She says the plan is to do 4 hours online out of 12 hours weekly, and that it is targeting NNESTs. Dr. Cho says that they intended to pilot it with one group in February, but that if they saw more need, it could be two groups. I ask Dr. Cho who instigated the project, and she said it was "mutual," but also "I think I could have initiated." She said the main idea of the program is to reach beyond [this city and nearby province], which is a saturated market.	Dr. Cho points out market factors in program planning.
Nov 20	I ask Dr. Cho what had made her decide on a synchronous program. She says "we value highly interactive classroom atmosphere" and that they were more involved in meaningful interactions. She asserts that format could be conveyed through a synchronous mode.	Dr. Cho says synchronous mode can help with interactivity.

Nov 20	Dr. Cho also talks about a new program to start in May which would be mainly online. She said the learning format has changed and that they "cannot deny this trend." The plan was for an online self-study course of perhaps 50 hours for novice teachers who can study independently. I ask Dr. Cho how she has been devising these programs, and she says she has been watching online MA programs. She notes, "but still my belief is that distance in the area of language teacher education will be more beneficial to NESTS. In terms of NNESTS need language training." She says she wants to provide the benefits of delivering content online while making it "somewhat innovational." She says, "we are different-- we understood importance of language training without classroom component" and "we also have to provide teaching models as well, not just content." She says she wants it to be interactive, with "interactional models to potential language teachers" and stressed that even when blended, the program needed to maximize opportunities for NNESTs.	Dr. Cho says she feels that NNESTs require more F2F language training than is afforded in a purely online program, and is aiming for an innovative, interactive program.
Nov 20	I ask Dr. Cho about training for instructors. She says that in December, somebody with start with the content work, and that it will be the Writing Course and the Methodology Course, with a part online, since those are "not too difficult to transfer." She admits that somebody will have to work on in during the winter, but that they can transfer it with no difficulty then. She notes that "Ray will have to put energy and time into it" as it is the Methodology course. For the blended learning medium itself, she says "one	Dr. Cho explains how the plan is slated to work, with content development and delivery mode development. She notes that she felt Ray was overloaded, and

	techno-savvy person will focus on this." During the winter, one person will develop a workshop format and will train other teachers. At this point, Dr. Cho acknowledges that this will be the job of someone else, and not Ray, as Ray was becoming overloaded. Nevertheless, she maintains that Ray will still be involved because the course will be a component of the CU General TESOL program, which he handles. Dr. Cho says that this will count as an extra class, and that CU General TESOL will have to appoint teachers, but that "for one course each, it shouldn't be a big deal." However, she notes that by May, two teachers will focus on development. By that time, she says, all the teacher educators will receive basic training and there will be a software transfer.	she has got someone else to do the blended learning medium planning, with a plan for workshops for other teachers. She says she does not think it is too hard to adapt the courses to an online format.
Nov 20	Dr. Cho talks about the meeting both school and teacher educators' demands, noting that "it's not easy." She says that with the university, it is important to see "feasible business." She attests to working a little behind her schedule for the online program, which she has delayed until May. There is to be a signing ceremony the following week, after a feasibility check has been conducted. She says she needs two people to start a program, and now has Ray and Ben. Dr. Cho notes "Ben is tech-savvy, I know he has background." She adds, "I told Ray to take the lead, but I felt like he became overloaded." She says that it had been his suggestion to work on the program at first, and that Ray had pointed out that the program could give the faculty and school the opportunity to reach new fields.	Dr. Cho notes a rift in institutional and faculty demands. She claims that Ray had claimed to want the growth opportunity of the program, but that she felt it had become a burden to him, and had decided to hire someone.

	However, she says that as things went along she noticed it was too much of a burden, and therefore told him she would hire. She says that at a certain point Ray sounded overloaded because he had to learn so much, and says, “Very recently, I made the decision to rehire somebody.”	
Nov 20	On the new hire, Dr. Cho says that it is a returning faculty member who has now completed an online PhD. She says she trusts his “single-mindedness.” “Eight years ago he was almost nobody. I nurtured him. He learned a lot,” she says. Dr. Cho says that there was another qualified person that they had thought about hiring after putting out an ad. There was someone who knew blended learning well, had taken online courses, and had sufficient teacher training experience. However, she says that she thought about it again, and “felt like we really need to make the program successful.” She notes that the returning faculty member had online experience and was tech-savvy, but that most of all, he had dedicated himself to the“ benefit of program.” Dr. Cho says it would be more expensive to bring him back as he had already taught eight years in the program, but that it would be worth it. She says, “I have run program for many years, so I know what it takes to make something successful.” This, says Dr. Cho, is not knowledge, but rather people. She says the new hire’s insider’s view will be beneficial and that the BLP will be a collaborative work. The new teacher educator is the third person to work on the project, according to Dr. Cho. She already has Ben on	Dr. Cho describes her decision to rehire someone tech-savvy who has already worked in the program and who had shown his dedication.

	board, and says, “I’m going to use Ray’s passion.” She points out that no one so far showed expertise in the blended learning field, so Ray and rehired faculty member would connect and work things out.	
Nov 20	I ask Dr. Cho if she would do anything differently if she were to plan the BLP again. She says would still use a new hire as a resort. Even when it is online, she notes, their program is still a teacher training institution above all. Dr. Cho says that “up to a certain point, Ray was really instrumental.” For the online course, she says she is going to discuss the teaching format with Ray and that the rehire and Ray can collaborate. She notes that Ray took the initiative. Dr. Cho points out that planning for the components of the online course took place in March 2013, or even before. However, she say that the worry was the efficacy of the learning component for NNESTs, since they believed in interactive teaching. She says that back then it did not seem like anything appropriate was available. However, she says that now they can move forward since they were sure that they could do it without losing “much of our training objectives” as long as there as a certain limit on the ratio of the online component, and as long as it was “a part of whole training.”	Dr. Cho says the moving forward, there would be a collaboration among Ray, Ben, and the rehired teacher educator. She says that although the planning started in March 2013, it did not look like the technology had caught up to having an interactive learning program for NNESTs. Now, she say there is an opportunity to run the BLP without losing sight of training objectives.
Nov 20	I ask Dr. Cho if there will be a technician to help with the course. She says, “Yes, depending on which software we choose.” She notes that the program’s “foreign teachers prefer some sort of foreign products” and that is difficult	Dr. Cho notes that the non-Korean teacher educators

	"unless there is a Korean branch where they could be in person every time." She says they are still considering which program to use.	wanted a non-Korean product, which could make technical help tricky.
Nov 20	Dr. Cho points out again that, "Ray took initiative," but that "both of us realized at a certain point" that there was a need for another person. She says she "felt like Ray would rather have just one person," but that she had arranged for one person, plus Ben. Dr. Cho says that she had started to feel at one that there was a "passing-the-blame circle" or what she says an administrator might call a compensation/opportunity trade-off. She notes that it could be "somewhat overloading, unless there is compensation." She says that she had started thinking that even with compensation, it was "still overloading" for the teacher educators, and that they were doing something extra. I ask Dr. Cho if she had known how much the workload was. She says "Personally, since I haven't done it, that's why I'm going to depend on others, rather than others who should learn." She says there was a developmental fee and extra benefits given, which is why they rehired someone who is techno-savvy. She says Ray got tired, and suggested it as a support whenever necessary, but then all of a sudden "like a spark," Ray was strong about it. Dr. Cho says before she just respected his wishes, but told him that since he sounded overloaded, she was hiring.	Dr. Cho talks about a blame game and compensation/opportunity trade-off, and notes that without compensation, the workload could be "somewhat overloading." She notes that Ray had shown signs of tiredness; they made sure the new hire was tech-savvy to take charge of the delivery planning.
Dec 5	Ray talks about the person that Dr. Cho has hired to get the BLP organized, noting that he had asked for a combination of cash and reduced hours for himself or	Ray says he is happy about the new guy coming

	someone else in the team to do it, saying that Dr. Cho said "no." In the end, he says, Dr. Cho is bringing back a former coordinator to do it and to work in the Master's program. Ray says that the new person is a friend of his whom he knows well, and that he worries that the new program planner will work himself into the ground to get it done. Ray expresses a worry that the new person might take on work for free, and that he intends to protect the new guy from letting that happen. Ray says that new guy is still in his former job, and that Ray "will be happy to Skype with him for an hour or two, to bring him up to speed, but that he imagines the new guy will be working on it without getting paid extra in January. Ray says that he is looking forward to it and that he thinks he can work it out so that it is a nice solution, and that it will be good to have will be great to have "another creative, imaginative, aggressive brain in that, in that, in that section basically" (in the Master's program).	in to take over the program. He is a little worried that the rehired teacher educator will overwork himself, and says he intends to try to protect him from letting this happen.
Dec 6	Luke tells me that during his graduate degree in the US, he had some blended learning classes, whereby the online component involved just reading and responding to posts on a discussion board: It's just one way, if it's all the classes like that it's just one way to do things. So it didn't seem like a really incorporated technology in an interested way, it was just saving time and resources I will assume. They did not want to pay for that classroom or rent that classroom out, I don't know."	Luke had experience in blended learning from a student perspective, and felt that the online component was underused.
Dec 20	Semester ends—TEs' holiday begins	
Feb 2014	CU-TESOL launches its BLP.	